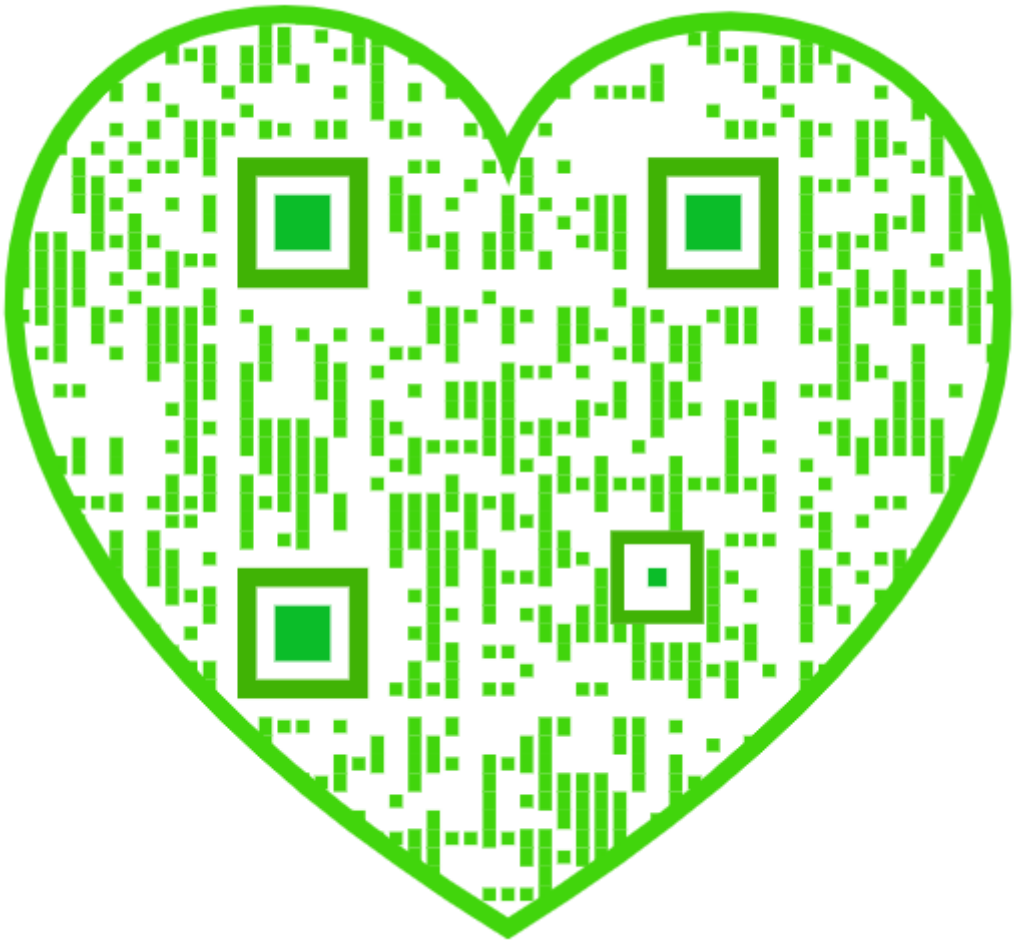

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CONTENTS.

CHAPTER I.

The Brain and Nervous System—Their Accidents and their Diseases.

Phrenitis—Abscess within the Brain. 19
Staggers—Sleepy Staggers and Mad Staggers..... 20
Megrims..... 24
Hydrophobia..... 27
Tetanus..... 28
Stringhalt..... 33
Partial Paralysis..... 36
Gutta Serena..... 38

CHAPTER II.

The Eyes—Their Accidents and their Diseases.

Simple Ophthalmia..... 42
Specific Ophthalmia..... 46
Cataract..... 54
Fungoid Tumors within the Substance of the Eye..... 57
Lacerated Eyelid..... 60
Impediment in the Lachrymal Duct.. 61

CHAPTER III.

The Mouth—Its Accidents and its Diseases.

Excoriated Angles of the Mouth..... 64
Parrot Mouth..... 66
Lampas..... 67
Injuries to the Jaw..... 69
Aphtha..... 73
Lacerated Tongue..... 74
Teeth..... 78
Scald Mouth..... 82

CHAPTER IV.

The Nostrils—Their Accidents and their Diseases.

Cold..... 84
Nasal Polypus..... 88
Nasal Gleet..... 91
Highblowing and Wheezing..... 94

CHAPTER V.

The Throat—Its Accidents and its Diseases.

Sore Throat..... 96
Cough..... 99
Laryngitis..... 101
Roaring..... 106
Choking..... 110
Rupture and Stricture of the Œsophagus..... 115
Bronchocele..... 119

CHAPTER VI.

The Chest and its Contents—Their Accidents and their Diseases.

Congestion in the Field..... 121
Congestion in the Stable..... 123
Bronchitis, or Inflammation of the Air-passages..... 125
Pneumonia, or Inflammation of the Lungs..... 130
Pleurisy..... 136
Hydrothorax..... 139
Disease of the Heart..... 143

CHAPTER VII.

The Stomach, Liver, etc.—Their Accidents and their Diseases.

Spasm of the Diaphragm..... 145
Acute Gastritis..... 147
Chronic Gastritis..... 150
Bots..... 152
Chronic Hepatitis..... 158
Crib-biting..... 162

CHAPTER VIII.

The Abdomen—Its Accidents and its Diseases.

Enteritis..... 165
Acute Dysentery..... 172
Chronic Dysentery..... 175
Acites, or Dropsy of the Abdomen.. 178
Influenza..... 181
Abdominal Injuries..... 184
Worms..... 190
Spasmodic Colic; Fret; Gripes..... 194
Windy Colic..... 199

CHAPTER IX.

The Urinary Organs—Their Accidents and their Diseases.

Nephritis, or Inflammation of the Kidneys..... 204
Cystitis, or Inflammation of the Bladder..... 209
Spasm of the Urethra..... 212
Calculi..... 213
Hematuria, or Bloody Urine..... 215
Diabetes Insipidus, or Profuse Staling..... 217
Albuminous Urine..... 218

CHAPTER X.

The Skin—Its Accidents and its Diseases.

Mange..... 220
Prurigo..... 226
Ring-worm..... 227
Surfeit..... 229
Hide-bound..... 231
Lice..... 232
Larva in the Skin..... 233
Warts..... 235
Tumors..... 237
Swollen Legs..... 239
Sitfast..... 240
Grease..... 242
Mallenders and Sallenders..... 249
Cracked Heels..... 250

CHAPTER XI.

Specific Diseases—Their Varieties and their Treatment.

Broken Wind 254
Melanosis 259
Water Farcy 262
Purpura Hemorrhagica 265
Strangles 267
Glanders 274
Farcy 282

CHAPTER XII.

Limbs—Their Accidents and their Diseases.

Osseous Deposits—Spavin 286
Splint 294
Ring-bone 298
Strain of the Flexor Tendon 300
Clap of the Back Sinews 302
Sprain of the Back Sinews 303
Breaking Down 304
Curb 306
Occult Spavin 308
Rheumatism 312
Wind-galls 315
Bog Spavin 318
Thorough-pin 319
Capped Knee 321
Capped Hock 321
Capped Elbow 324
Luxation of the Patella 325
Blood Spavin 328

CHAPTER XIII.

The Feet—Their Accidents and their Diseases.

Lameness 330
Pumice Foot 339
Sandcrack 342
False Quarter 345
Seedy Toe 346
Tread and Overreach 348
Corns 349
Quittor 354
Canker 358
Thrush 363
Ossified Cartilages 366
Acute Laminitis, or Fever in the Feet 367
Subacute Laminitis 375
Navicular Disease 377

CHAPTER XIV.

Injuries—Their Nature and their Treatment.

Poll Evil 388
Fistulous Withers 391
Fistulous Parotid Duct 394
Phlebitis, or Inflammation of the Vein 398
Broken Knees 404
Open Synovial Cavities 412
Open Synovial Joints 418
Wounds 423

CHAPTER XV.

Operations.

Operations 434
Tracheotomy 443
Periosteotomy 449
Neurotomy 451
Division of the Tendons 457
Quittor 462

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THE

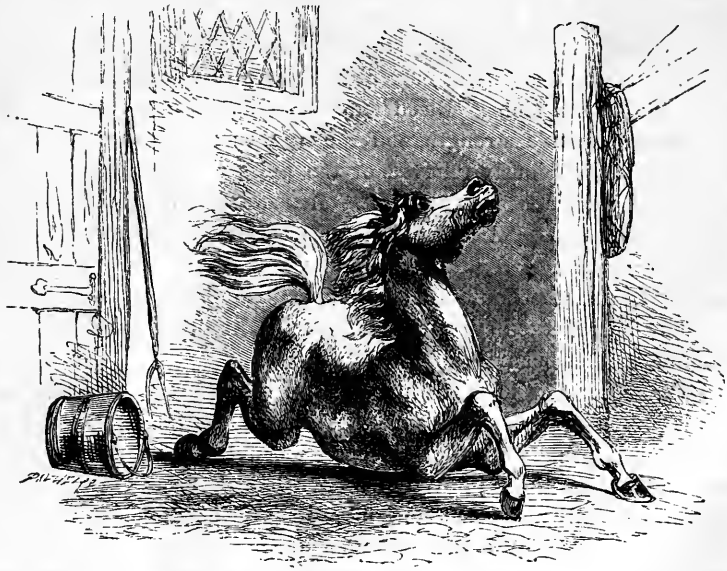
ILLUSTRATED HORSE DOCTOR.

CHAPTER I.

THE BRAIN AND NERVOUS SYSTEM—THEIR ACCIDENTS AND THEIR DISEASES.

PHRENITIS.

Phrenitis implies inflammation of the brain. Madness and extreme violence are the consequences. The animal, in this condition, disregards all recognitions, and, apparently, loses all timidity. It suffers the



A HORSE MAD, OR WITH INFLAMMATION OF THE BRAIN.

greatest agony, and no terror can appal it. It would rejoice, could it anticipate the effects, if the mouth of a loaded cannon were pointed

toward itself, and would look for relief when the portfire descended upon the touch-hole. Every movement seems designed to end its own existence; but the furor has no malice in it. The creature strives only to injure himself. It may in its efforts shatter and demolish the structures which surround it; but it does so without intention. That is merely the result of its being carried away beyond the things of this world by a mighty anguish. It desires harm to no one; but it cannot remain quiescent, and endure the torment which rages within its skull.

When this stage of the malady appears, the best thing is to anticipate the evident wish of the animal. The teaching of schools, which instructs young men to meddle with the strength of an infuriated horse, is mere prattle. However, if the disease, as it seldom happens, is perceived approaching, something may be attempted. Before the violence commences, the horse is generally dull. It does not obey the rein or answer to the lash. It is heavy beyond man's control. It snores as it breathes. The lids drop; the head sinks; the body is cold; the membrane of the nose is leaden in color; and, from being the obedient, watchful, and willing slave, its entire nature appears to have changed. It does not attend to the goad, and the voice of the driver may bawl in the harshest key, but the sound which used to excite seems unheard and is unheeded.

The remedy for the earlier stage is copious blood-letting. Open both jugulars and allow the current to flow till the countenance brightens or the animal sinks. Bleed again and again, if necessary. Give purgatives of double strength, and repeat them every three hours, till the bowels are copiously relieved or the pulse changes, or the general appearance indicates improvement. Afterward, administer sedatives, always as infusions. A scruple of tobacco, half a drachm of aconite root, or a drachm of digitalis should have a pint of hot water poured upon it. When the liquid is nearly cold, it should be strained, and the dose may be repeated every half hour, until its operation is witnessed in the more quiet behavior of the animal.

In the generality of cases, however, no opportunity for such treatment is presented. The disease is most common in the agricultural districts, and is usually seen where carters indulge their passion in the butt-end of the whip employed upon the horse's head. The cause is, however, carefully concealed, and, after the violent stage has set in, the original wound is generally mistaken for some self-inflicted injury. Thus, the horse, even in the most horrid of deaths, with a generosity characteristic of its nature, contrives to shield the being whom it served and loved, from the consequences of his inhumanity.

Should the animal, by such means, recover, treat it gently; do not

excite it; for phrenitis is apt to return. Even recovery is not always to be wished for. The depletion, imperative for the cure, too often engenders the weakness which no care can eradicate; and the animal survives only to change from the willing servant into a troublesome valetudinarian.

ABSCESS WITHIN THE BRAIN.

This sad affection is invariably produced by external injury. A horse runs away and comes in contact with some hard substance. The blow is of sufficient violence to fracture the strong cranium of the quadruped and to smash all that remains harnessed to the animal. Here we have a reason why man should establish more than a brutal mastery over the

A HORSE DYING FROM ABSCESS WITHIN THE BRAIN.

animal he possesses. The horse is the most timid of creatures. It, however, quickly learns to recognize the voice of its owner. In its vast affection, it soon trusts with confidence to the person who is kind to it. An occasional word thrown to a patient and willing servant, spoken softly to the animal which is putting forth all its strength for our pleasure, would not be cast away. When dread overpowers the horse and it begins to run at its topmost speed, do not pull the reins: the first check should be given by the voice. Speak cheerfully to a timid creature. If the first word produces no effect, repeat it. Watch the ears. If these are turned backward to catch the accents, talk encouragingly to the horse. The voice of one it loves will restore its confidence. The pace will slacken. Talk on, but always in a tone calculated to soothe distress. Then gently touch the reins. The first gentle movement may not be responded to, but the second or the third will be; and the animal, released from terror, is once more under your control.

This is much better than tugging and flogging, which obviously are thrown away upon a body that horror has deprived of sensation. The

noise and the resistance but feed the wildness of the fear, and, in the end, the driver is carried to a hospital, the horse being laid prostrate among the ruins it has made.

When led back to the stable, a wound is discovered on the animal's forehead. It is so small it is deemed of no consequence. A little water oozes from it—that is all—it does not send forth matter, or it might deserve attention. However, in a short time the horse becomes dull. It will not eat. Soon it falls down and commences dashing its head upon the pavement. There it lies, and, day and night, continues its dreadful occupation. One side of the face is terribly excoriated, and must be acutely painful; but the horrid labor still goes on, each stroke shaking the solid earth, which it indents. At last death ends the misery, and a small abscess, containing about half a drachm of healthy pus, is discovered in the superficial substance of the brain.

Physic or operation is of no use here. The cranium of the horse is covered by the thick temporalis muscles. This alone would prevent the trephine being resorted to. Blood would follow the removal of any portion of the skull. Besides, what or who is to keep the head still during the operation? and, were the operation possible, who would own an animal with a hole in its skull? The only means of cure would be to afford exit to the matter; and to do that is beyond human ingenuity.

STAGGERS—SLEEPY STAGGERS AND MAD STAGGERS.

Staggers means no more than a staggering or unsteady gait; an incapacity in the limbs to support the body. It therefore, by itself, represents only that want of control over voluntary motion which generally accompanies injuries to the brain. **Mad** and **sleepy staggers** represent only different symptoms or stages of cerebral affection. **Sleepy staggers** implies the dull stage, which indicates that the brain is oppressed. **Mad staggers** denotes the furious stage, when the brain has become acutely inflamed.

There is but one origin known for staggers, and that is over-feeding. Carters take the team out and forget the nose-bags. The omission is not discovered till far on the road. No thought is entertained of turning back. The poor drudges, consequently, have to journey far, to pull hard and long upon empty stomachs.

When home is at length reached, the driver thinks to make amends for neglect; the rack and manger are loaded. Such animals as are not too tired to feed, eat ravenously. The stomach is soon crammed; but fatigue has weakened the natural instincts, and domestication has taught the horse to depend entirely on man. The creature continues to feed,

till a distended stomach produces an oppressed brain. An uneasy sleep interrupts the gormandizing. The eye closes and the head droops. Suddenly the horse awakens with a start. It looks around, becomes assured and takes another mouthful. However, before mastication can be completed, sleep intervenes, and the morsel falls from the mouth or continues retained between the jaws.

This state may continue for days. The horse may perish without recovering its sensibility; or mad staggers may at any period succeed, and the animal exhibit the extreme of violence.

Mad staggers equally results from carelessness in the horsekeeper. The animal which gives itself up entirely to the custody of man, too often experiences a fearful return in recompense for its trustfulness. Any neglect with regard to the feeding of a horse, may entail the worst; and a most cruel death upon the inhabitant of the stable is too often its reward. The groom, perhaps, may slight his work, lock the stable door and hurry to his beer-shop, leaving the lid of the corn-bin unclosed. The horse in his stall, with his exquisite sense of smell, scents the provender and becomes restless. His desire is to escape from the halter. With fatal ingenuity the object is accomplished, and the next moment the animal stands with its nose among the coveted oats. It eats and eats as only that being can whose highest pleasures are limited to animal enjoyments. After a time it becomes lethargic; but from that state it is soon aroused by a burning thirst. The corn has absorbed all the moisture of the stomach, the viscus being dry and distended. Pain must be felt, but thirst is the predominant feeling. Water is sought for. None is to be found; and the sufferer takes his station near the door, to await the appearance of his attendant.

No sooner is the entrance opened, than the quadruped dashes out. With all speed it makes for the nearest pond. There it drinks the long and the sweet draught few in this life can taste; but to know which, is to die a terrible death. The corn swells more with the liquid imbibed. The stomach is now stretched to the uttermost. Continued tension causes inflammation. The brain sympathizes, and the horse speedily becomes acutely phrenitic.

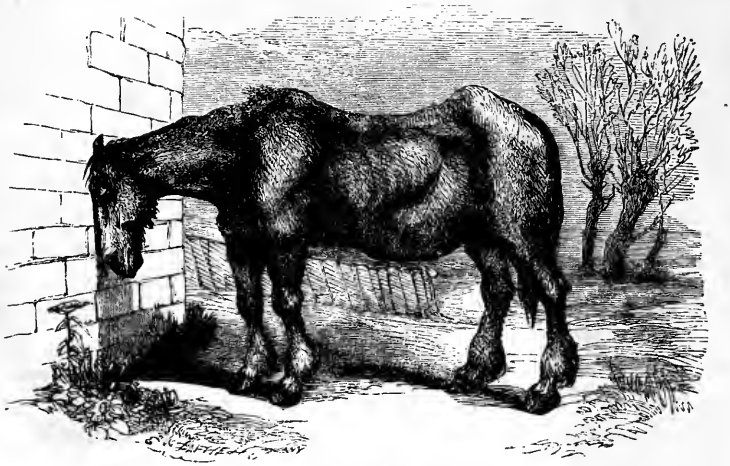
There is, however, a strange symptom, in which the two disorders appear mingled. The sleepy fit is not entirely removed, nor are the violent symptoms fully developed. The horse, in this condition, will press its head against a wall. In doing this, it only displays an impulse common to most animals in the sleepy stage; but the peculiarity is, that the eye may be half unclosed and the limbs vigorously employed, as though a trotting match were going forward. The breath will quicken and the creature be coated with perspiration. This attitude and motion

may subside, and recovery may ensue; but commonly the quadruped drops, moves the limbs as it lies upon the ground, and is only quieted by death. In a few instances horses have left the wall to exhibit the utmost violence, and to sink at last.

When corn has been gorged during the night, the animal must be rigidly kept from drinking. A quart of any oil should be immediately administered. A pint of oil is the ordinary dose; but here there exists more than an ordinary disease. Besides, much of the fluid will sink between the grains, and, probably, not half of it will reach the membrane of the stomach.

Oil is preferable to the solution of aloes, which is generally given, inasmuch as it will not act upon or swell the corn so readily as any medicine dissolved in water. Should no amendment be detected, in six hours repeat the dose. In another six hours, give another dose with twenty drops of croton oil in it. When another period has elapsed, should no improvement be noted, give thirty drops of croton in another quart of oil. Should none of these drinks have taken effect, the round must once more be gone over. However, at the slightest mitigation of the symptoms or even suspicion of amendment, stop all medicine at once. The altered aspect of the horse is the earliest symptom that the distention is relieved.

In **sleepy staggers,** the head hangs pendulous or is pressed firmly



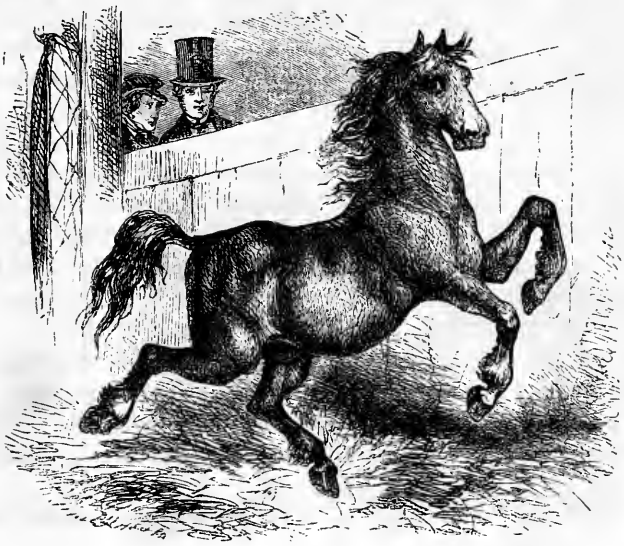
SLEEPY STAGGERS, FROM OVER-GORGING.

against some prominence. The pulse throbs heavily—the breathing is laborious, and the animal snores at each inspiration. The eye is closed; the skin cold and the coat staring. The nasal membrane leaden. The

mouth clammy; the ears motionless; the tail without movement, and the breathing alone testifies that it is a living animal we look upon.

The signs that announce the advent of mad staggers, from whichever cause the disease may arise, are always alike. The lid is raised, and the eye assumes an unnatural brightness. The nasal membrane reddens; the surface becomes as hot as it was previously deficient in warmth; the movements are quick and jerking. The breath is no longer laborious—it is rapid, sharp, and drawn with a kind of panting action. The whole appearance is altered. The characteristics of approaching frenzy can hardly be mistaken.

Then comes the most painful duty of ownership over life. The proprietor has, then, to make a speedy choice, whether his dumb servant is to take a desperate chance and undergo a torture for which the concentrated pleasure of many lives could not atone, or be deprived of the fatal power to injure others and itself. Humanity would unhesitatingly pronounce for death, and, in this case, there is need of haste. The symptoms are so rapidly matured, that, in ten minutes, the poor horse may be sadly hurt and bleeding, panting and rearing, in the center of a



THE HORSE DURING THE MAD STAGE OF STAGGERS.

desolated stable. A mad horse is a terrible object! Its strength is so vast that ordinary fastenings yield before it; but the animal, even when deprived of reason, wins our respect. Suffering will find expression in energetic action. Man, when a tooth is about to be extracted, generally

clinches something; but what were a hundred teeth to the agony which causes every fiber in the huge framework to quiver? The perspiration rolls off the creature's body. The eye glares with anguish, not with malice; the body is strangely contorted, but there is no desire to injure. Who, contemplating such a picture, could forbear speaking the word which should grant peace to the sufferer, although the order necessitate some violence to the feelings of him who is invested with power to command?

MEGRIMS.

So little sympathy exists between man and horse, so little are the ailments of the animal really studied, that the likeness between certain diseases affecting the master and the servant have not been observed. **Megrims**, evidently, is a form of epilepsy; yet, to speak of an epileptic horse would, probably, induce laughter in any society. Notwithstanding which, man is not isolated in this world: he is associated with the creatures of the earth not only by a common habitation, but by similar wants and like diseases. He is united by nature to every life that breathes. His heart should feel for, and his charity embrace, every animal which serves him. He has his duty toward, and is bound by obligations to, every creature placed under his control. None are so subject to his will as is the horse; none have such powerful claims to his kindness and forbearance. The noble animal is begotten by man's permission; its course in life depends upon his word: for his service it surrenders everything—freedom, companions, and paternity—it relinquishes all. Its owner's pleasure becomes its delight; its master's profit is its recreation. It is the perfect type of an abandoned slave; body and soul, it devotes itself to captivity. It is sad to think how bitter is its recompense, when an obvious similarity, even in affliction, has not to this hour been recognized.

Megrims, like epilepsy in man, will in certain subjects appear only during some kind of exertion. In others, it will be present only during particular states of rest. It is uncertain in its attacks. It is not understood; and of the many theories which have been advanced, none explain it.

All horses may show megrims; some when at work, and some only while in the stable; others in the glare of day, and a few during the darkness of night; but of all, draught horses are the most liable to the malady. This may be because harness horses are subjected to the most laborious and most continuous species of toil. A horse fettered to a vehicle obviously must strain to propel as much or as long as the person intrusted with the whip thinks the animal should draw. Men's con-

sciences, where their own convenience and another's exertions are the stake, generally possess an elastic property. It takes a great deal to stretch them to the utmost. An Arabian proverb says, "it is the last feather which breaks the camel's back;" but the English driver knows the entire pull is upon the collar, and he is moved by no considerations about the back. If the whip cannot flog the poor flesh onward, a shout and a heavy kick under the belly may excite the spasm, which, in its severity, shall put the load in motion.

Age does not influence the liability to megrims. The colt, which has done no work, may exhibit the disease, and the old stager may not be subject to its attacks. One horse may die in the field from exertion and never display the malady; another shall be led through the streets and exemplify megrims in all its severity. One shall be merely dull—the disorder shall never get to the acute stage, though the fits may be repeated. This last, to the surprise of its master, shall every now and then stop, stare about, and proceed as though nothing were the matter. A second, when mounted, will be seized by a sudden impulse and run into shop doors; while a third, being between the shafts, will be possessed with an irrepressible desire to inspect the driver's boots.

The horse often becomes suddenly stubborn. The reins are jagged and the whip plied to no purpose. The animal will only go its own way, which is commonly beset with danger. Perhaps, it may persist upon galloping, head foremost, down an open sewer; probably, it will rush up the steps leading to some mansion, and beat the door in with tremendous knocking.

Then come convulsions, followed by insensibility. If such a scene occur in a city, of course a crowd collects. Opinions are noisy and various; but a majority incline toward bleeding from the mouth. It is only to cut the palate, and a dozen knives, already opened, are proffered for the purpose. However, let the person in charge attend to no street suggestion. Let him at once seat himself upon the horse's head, and remain there till consciousness returns; then speak kindly to the sufferer, loosen the harness, and take care that the animal is perfectly recovered before it is permitted to rise.

THE EXPRESSION CHARACTERISTIC OF REPEATED ATTACKS OF MEGRIMS.

Dealers pretend that a horse subject to megrims is to be readily told. A horse, after repeated fits, is easily singled out; but the animal which has experienced only a single attack,

no man could challenge. One attack, however severe may be its character, will not necessarily leave its impress upon the countenance. But the creature subject to such visitations soon assumes a heavy, flaccid, and stupid expression. The disease distorts no feature, but it leaves its mark behind; and any man, acquainted with the subject, would have no difficulty in picking from a drove the horse which has endured repeated fits of this disorder.

Another class of knowing ones pretend they can drive a megrimed horse any distance, by simply keeping a wet cloth over the brain. This last experiment is, however, not inviting; and the author has yet to be assured by science that a wet rag over the brain would repose upon the primary seat of the disease.

When a horse has the first fit of megrims, at once throw the animal up. Do not strive to sell the diseased creature, as such a sale is illegal. The law presumes everything sold to be fit for its uses. Thus, a person buying rotten eggs can recover at law, because eggs are sold for human food, and no man can eat a tainted egg. So a megrimed horse is unfit for employment. Recovery in this disease is always doubtful. A chance is best secured by throwing the horse up on the first attack. Do not turn a sick animal out to grass. Keep in a loose box, covered with plenty of straw. Feed liberally, and with the best food. Have the body regularly dressed, and the animal led to, not ridden to, exercise. Allow a quart of stout every morning and half a pint of oil every night. Above all things, attend to the stabling. Let the box be large and well ventilated. Food is eaten but occasionally during the day. Air is as essential as more substantial nutriment to life, and is consumed night and day. Food has to undergo a complicated change, and to travel far, before it joins the blood. Air is no sooner inhaled than it is immediately absorbed by the blood. After such a statement, it is left to the reader's reason to decide upon the importance of pure air toward sustaining health. Probably, were stables erected with a little less regard to the proprietor's expense and the builder's convenience; probably, were they made in some degree proportioned to the magnitude of their future inhabitants, and were the comfort of the captive a very little considered in their construction,—the health of a horse might not be so very telling a proverb; while megrims, under a better treatment, if it did not disappear, might not be so very common.

HYDROPHOBIA.

This is always the fruit of contagion, received from some stable-pet, in the shape of a dog or cat. It is essentially a nervous disorder. From the first, it influences the brain to a degree which no other malady seems capable of exercising. The animal constantly licks some portion of the body. The place appears to itch violently, and the tongue is applied with an energy and a perseverance highly characteristic of an over-wrought nervous distemper. The appetite always is affected; sometimes it is ravenous. The rack is not only emptied with unusual speed, but the bed, however soiled, is also consumed with more than apparent relish. Generally, however, the desire for provender is destroyed. Sometimes, the longing for fluids is morbidly increased. The horse plunges his head to the bottom of the pail, will bite at the groom who endeavors to interrupt the draught, or seize the wood between its teeth and crush it with a powerful gripe. More frequently, water will cause spasm, and be avoided with horror. The animal's likings may be morbidly changed: it will occasionally devour its own excrement, and lick up its emissions.

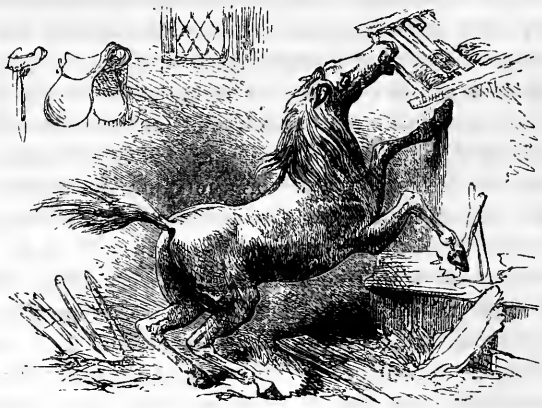
The nervous system is always highly developed. The horse starts at the smallest sound, trembles violently without a cause, flies backward, hangs upon the halter, stares wildly, and bursts into a copious sweat without any apparent reason being detected. Its voice is also changed, and the expression of the countenance invariably altered. The neigh is squeaking, and the face is at the commencement characterized by immense anxiety, which is soon changed for a peculiar aspect of cunning, mixed with a grinning ferocity.

THE COUNTENANCE OF A HORSE WITH HYDROPHOBIA.

Rarely, however, all the foregoing symptoms are absent. The horse is harnessed and taken to work. Suddenly it stops, appears stupid, and threatens to fall. In a short time it recovers, and the labor is proceeded with. The fits occur again and again. At length they end in violent shivering. When the tremor ceases, the recognition is not perfectly recovered. The breathing is quick and sharp; the eye bright and wild. The animal is turned homeward, but seldom reaches the stable before the furious stage begins.

Hydrophobia is commonly matured before the expiration of the sixth week. A fortnight is the earliest period of its appearance; but writers have asserted that the imbibed virus will remain dormant for twelve months. The author has no experience which justifies the last opinion.

Whenever a suspicion of this incurable and horrible disorder is entertained, place the horse by itself in a building with bare walls, but capa-



THE DESTRUCTIVE IMPULSE OF HYDROPHOBIA.

ble of being looked into through a window. Put food and water in the house, and, if the door be not strong, have it barricaded. Let no one enter for at least three days, as, during this disease, the horse is both mischievous and dangerous. The pain is such that it seeks relief in destruction. All breathing and moving creatures first attract its rage; but, wanting these, its frenzy is expended in breaking, rending, and scattering inanimate objects. Its ability to destroy is only limited by the duration of the disorder.

Let as few people as possible be near the hydrophobic horse. The quadruped's nerves are then alive to every impression. The presence will be detected, though the person be assiduously concealed. The sound of breathing even adds to the torture. Keep all people away but one; and that one should be the best shot in the neighborhood. Let him approach, aim steadily, and pull the trigger; for a bullet well placed is the only remedy the author knows which can stay this fearful disorder.

TETANUS.

Tetanus is defined to be spasm of the muscles of voluntary motion. That definition is right, as far as it goes. The disease, however, is the same in man and horse. The human being complains of the breathing

being much oppressed, and of pain at the pit of the stomach. Such complaints show the diaphragm to be involved, while the large doses of strong medicine which can be swallowed with impunity prove the abdominal contents have not escaped. Therefore, the author regards tetanus as spasm of the entire muscular system.

A horse of any age may exhibit tetanus. Colts, newly dropped, have displayed the disorder, and all animals are liable to its attacks; but the very aged are least subject to this malady. Animals of a highly nervous temperament are most inclined toward it.

It is said to be of two kinds; but, in truth, it only has two origins. Traumatic tetanus is when it springs from a wound; idiopathic tetanus is when it appears without there being any known lesion to account for its presence. It may display its symptoms immediately or within a month of the injury. From the sixth to the fourteenth day is the most likely period for the advent of the disorder.

Cold, rain, draughts of air, and too much light, are all likely to originate it. Their potency, perhaps, ranges in the order they are placed. A gentleman is apt to dismount at some hospitable house and to leave the animal, which has quickly borne him thither, shivering in the night air. The master enjoys himself, probably, more than is good for his health. The patient steed waits and waits, more quietly than the most faithful of human slaves. It shivers in the night air; its limbs become cramped with the cold. The wind gets up, as the owner, before a cheerful fire, mixes another glass and takes another cigar. Still the horse remains almost in the spot where it was placed. The perspiration which covered the body dries in the darkness; evaporation quickly chills the blood which violent exercise had heated. The pulse sinks; spasms creep over the frame, but there is none near to note them. In solitude and discomfort the most painful of maladies is imbibed: in due time it breaks forth, to the astonishment of the proprietor.

Another man rides far and fast through a heavy shower. He reaches a distant house and flings himself from the saddle, fastening the horse to the door-post. Cordials are ready for the man, and business is discussed over a glass. No one thinks seriously of the poor life fastened to the door-post. "The horse is wet and can take no harm." "The gallop home will warm it," and so forth. Therefore, the animal remains, to be drenched by the rain and to creep as near to the house as it may for partial shelter; the posterior part of the body, however, projects, and the drops fall, heavy and cold as lead, upon the loins of the patient beast. The blood loses its warmth and the limbs their elasticity. When the owner again crosses the saddle he may be jolly; but it needs both spur and whip to cause the dripping and frozen animal to move.

When tetanus originates in some wound, the horse is generally nervous from the first. It fidgets in the stall; it lacks the repose which usually sits so beautifully upon the sick horse's frame. It is excited at the approach of any person, and, commonly, very obstinate when given physic. The wound may, nevertheless, be healthy. Sometimes, as the outbreak draws near, the wound may rapidly close, become morbidly dry, or, instead of pus, send forth only a foul and scanty serum. Instances are narrated of tetanus supervening upon mortification; but such reported cases are, in the horse, very rare. Commonly, the wound presents no appearance by which any man, however profound his knowledge, could guess the consequence to which it had given rise.

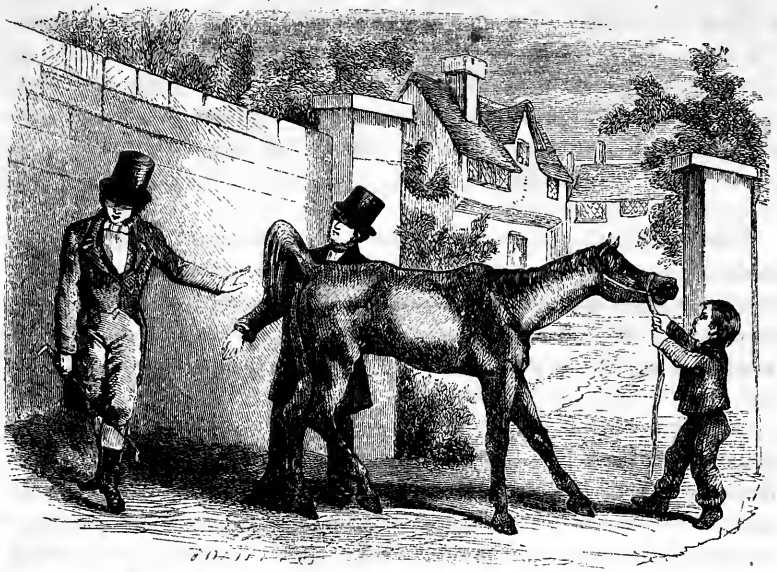
Tetanus is announced by an appearance of excitement. The tail is erect; the ears pointed forward; the head elevated; the legs stiffened and stretched out. This aspect of excitement is not temporary. The groom passes through the stable and the attitude is maintained. He wonders "what ails the horse?" It seems all alive; yet, though the groom shout out "come over," the order is obeyed with difficulty. The food is not eaten. It is picked and strewed about, but not devoured. When master returns home, the groom wishes he would "*just look*" at the horse. It is very strange indeed! Why, the tail is quivering and the body feels quite hard—not like flesh. Hopes are expressed and the "veterinary" sent for. He proceeds at once to the manger, observing the animal as he approaches. With one hand he raises the horse's head. The haw is projected over the eye, and a case of tetanus is recognized.

THE TEST FOR TETANUS, WHEN NOT FULLY DEVELOPED.

Most persons know what bellyache and cramp are. Well, these are but spasms affecting different parts of the body: tetanus is spasm affecting every part of the body at the same time. The spasm is always present; but it admits of aggravation. Any painful operation, any sudden fright, or the slightest sound, will produce a paroxysm, during which the horse's body is fearfully contorted; and the animal writhes as it falls to the ground. Left alone, however, the horse may rise after some time; for nothing causes the quadruped so much dread as an inability to stand. It may totter or fall about, but it refuses to lie down, even though rest must be greatly needed and would act as the best of medicine. It stands day after day in the same spot. It does not move, as any motion may

bring on one of those terrible paroxysms. The matter is rendered worse by the brain, during the entire period, being sensible. Every pain is felt, and the wretched animal has leisure to appreciate its agony. This is bad enough; but the torture is aggravated by the appetite of the animal not being dormant. Hunger still exists, and a sense of starvation augments the suffering. The jaw is closely locked. The creature cannot feed; but the presence of hunger is no supposition, for if a mash be held to the mouth, with a look of piteous gratitude the liquid portion is often drawn through the closed teeth. Hunger frequently impels the horse to make a desperate effort. The jaws are forced a little way asunder; a morsel is seized between the incisors; mastication commences, but cannot be perfected. The agony attendant upon motion forces the famishing creature to desist; and the poor horse is often found with a mouthful of hay firmly clenched and hanging from the mouth.

The animal may have been conspicuous for its beauty. The harmony of form may, in it, have been united to agility of limb. The creature



SHOWING HOW FAR AN ANIMAL WITH THE DISEASE IS CAPABLE OF MOTION.

may have been the pride of its proprietor; but a few days of this disease will work a mighty change. The limbs are moved with difficulty; the body has lost all its undulating grace; and the flesh has parted with its elasticity. The master in vain seeks for the object of his admiration in the painful sight which he then looks upon.

One peculiarity of tetanus is too marked not to be noticed. Persons have complained of the wooden appearance of the body; but, in severe cases, the height of the animal seems diminished and the length shortened. This appearance is more than the result of mere imagination. Many of the bones are divided by a fibro-cartilaginous substance: this substance force can compress. For that reason, a man is shorter when he retires at night than when he rises in the morning. No weight, however, can act with the energy of excited contractibility, and of that tetanus is composed: all the muscles are violently in action or energetically contracting. A single muscle, when excited, shortens to that degree, which moves some portion of the body; but, when the entire mass of muscles simultaneously contract, they compress the frame, as in a vice. The grace of the animal is lost; the height is diminished, and the length is lessened, under so powerful and general an action.

All kinds of treatment have been tried for tetanus, and it is said that each has resulted in success. The majority of these popular methods, however, are sheer barbarities; and if they were successful, they were so against probability. The plan at present adopted is much more humane: the animal's shoes are removed, that no sound may follow the tread, and a solitary shed is strewn with refuse tan. Food, in the form of an ample malt mash and a pail of thin gruel, is placed within easy reach. The shed must be approached but once daily—then by the man most accustomed to the horse; and he speaks soothingly as he nears the building to change the provender.

This species of treatment, when preceded by a large dose of purgative medicine, is usually successful. Mix four drachms of aloes or six drachms of aloetic mass, and four drachms of extract of gentian, with one scruple of croton ferina. This tremendous purgative may be confidently given, as everything during this disease depends upon the maintenance of quiet, and upon getting the bowels open.

As all people, however, may not live where solitude can be commanded; then, give the purgative, render the room dark, and allow as few curious visitors as the pleading of sincerity cannot prevent intruding upon the sick and disabled quadruped. Pulling the animal about to administer medicine seems to do more harm than the most powerful drugs can counteract. Permit no blisters; sanction no firing: counter-irritants, however beneficial in other cases, are positive irritants, when applied to a body nervously excited to the highest degree. Grant permission for no operation to be performed, as any person of ordinary imagination may picture the effect of bustle, followed by sharp pain, upon a creature which cannot endure even the slightest sound.

Should, however, the case last so long as to warrant fear of the

life sinking through starvation, food may be given even in quantities. Blood-warm linseed gruel should be procured—a gallon will be sufficient.

THE MODE OF FEEDING A HORSE WITH CHRONIC TETANUS.

The horse could swallow more; but after a prolonged fast there is danger in loading the stomach. Fix the horse catheter to the stomach-pump; then place the free end of the catheter in the nostril of the quadruped and push it forward, having previously slightly bent the end of the tube downward. Should the insertion provoke coughing, withdraw the catheter and commence afresh. Two feet of the instrument having disappeared, and no alarming symptom being present, begin to pump; do this as fast as possible, till the gallon of linseed gruel has been exhausted: such a resort is, however, better adapted to tetanus of the chronic description.

When applied to the acute form of the disorder, it is too apt to induce violent spasm. The acute disease, however, speedily terminates, and positive starvation is all but impossible during its brief continuance.

STRINGHALT.

Stringhalt is the imperfect development of that form of disease which, in man and in dogs, is called chorea, or St. Vitus's dance. In dogs it jerks the whole body, even to the face. The lower jaw will continue moving and the eye twitching, while the animal is prostrate and asleep. In the horse, however, it is seen only in the hind extremities. In the dog it will continue during progression, sometimes shaking the creature from its balance, and it often terminates in death. In the horse it is never fatal; and, save when about to start, is seldom to be detected. Then it causes the hind limbs to be quickly raised in succession. The movement is rapid, full of energy, and entirely involuntary. These

motions over, the horse proceeds, nor is the symptom usually witnessed again till the animal has once more to start; although a few exceptional cases are on record where stringhalt was perceptible at every step.

A HORSE HAVING STRINGHALT MUST MAKE SEVERAL INVOLUNTARY MOVEMENTS WITH THE HIND LEGS BEFORE IT CAN PROGRESS.

Guilford, the racer, exhibited the disease in its worst form. In that animal, stringhalt was present in such severity as prevented the signal being obeyed before the several eccentric movements had been performed. The horse was esteemed good for its purposes; but the ground lost at starting gave away its chances, and it was consequently sold. From the pampered stable of the race-horse, it descended rapidly through various grades until the creature came to be harnessed to a London omnibus. While in that position, the disease was so aggravated that the pastern used to hit violently against the belly, till the hair of both was partially removed by the repeated blows. The Society for the Prevention of Cruelty then purchased the miserable carcass for three pounds, and had the life and the suffering extinguished.

The body was given to the Royal Veterinary College for dissection. Professor Spooner relates that he found blood effused on the sheath of the sacro-sciatic nerve. This, however, must have been an accident produced by the death struggle: that nerve moves the flexor muscles. Stringhalt is the disease of the extensor muscles only; therefore, the

condition of the nerve alluded to by Professor Spooner could in no way influence the motions of the limb. Messrs. Percivall and Goodwin both appeal to instances, where, in animals affected with stringhalt, pressure existed upon the posterior portion of the spinal column. The last observation accords much more with the writer's notions of cause and effect.

Nevertheless, the inexperienced reader may ask, how can the posterior portion of the horse's spinal column become affected? Of all the vertebræ, those of the lumbar region are endowed with the greatest motion, and consequently are the most exposed to injury. The uses to which man puts the animal are not so very gentle but a delicate structure, however deeply seated, might be hurt. However, grant all these are harmless, which is indeed to allow a great deal to pass, the stables are enough to provoke stringhalt in half the horses now resident in London. Has the intelligent reader visited these places? He knows the holes in which poor humanity is obliged to stive. Well, any place not good enough for a man to live in is esteemed luxurious lodging for a horse. Many of the places are undrained; frequently have light or air admitted only by the doorway, and the stalls are seldom more than four feet wide. The wretched captives cannot turn their bodies round in the allotted space. A horse being in, when wanted abroad, must be backed into the gangway, and thus made to "face about." It is not creditable to human nature when we perceive its most valuable and willing servant is begrudged the space in which its useful body rests. The labor of the day should at least earn for the horse a sufficient bed.

The exhaustion of the toil—for man has nicely calculated the work a horse can perform, and generally exacts the quotum to the full—has merited the night's repose, which shall fit for the morrow's fatigue; but man is most particular in all that concerns the quadruped. He has reckoned up the food it may eat, the water it may drink, the space it may occupy; the keep, the keeper, the lodging, and the very harness that fastens it to the load,—all are precisely calculated. There is no law to interpose between man and horse, even should the estimate be run "too fine." Against sore shoulders there is some enactment, which is only enforced through a constable specially retained by a private association. No clause teaches man his duty toward his inferiors. The lower animals have no protection against the exhausting labor and inadequate provision that maims a body or wastes a life.

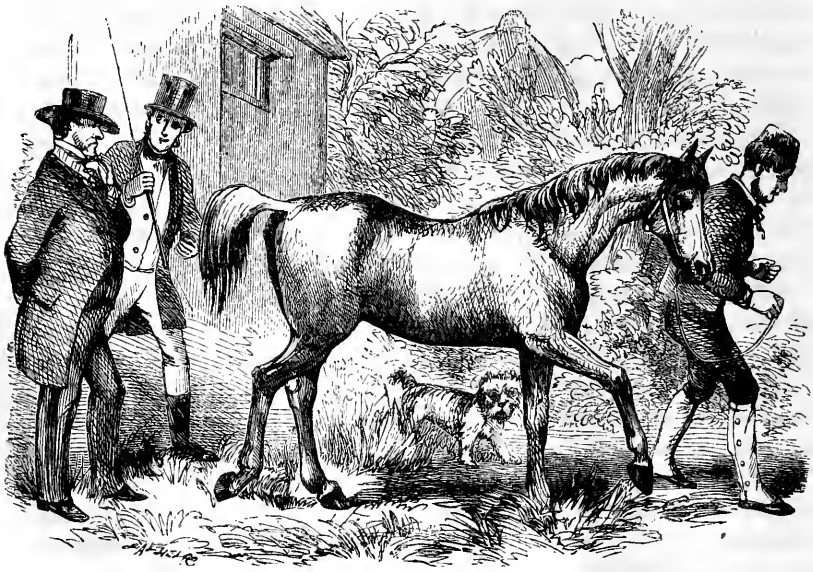
The servant, observing the master to be without feeling, apes his better. A bad example always finds plenty of imitators. The horse may be wanted in a hurry; the groom commands it to "come round." It is too much trouble to back the animal as usual; the master is in

haste and the servant has no time to lose. The poor animal endeavors to obey; it squeezes and twists its body: the head is seized, a blow is given, and the difficulty is vanquished. But at what a cost! One bone of the spine has been injured. Bone is slow in its developments. No immediate consequence results; but months afterward, the injured place throws out a spicula of bone, no larger than a needle's point, perhaps, but it presses upon the spinal marrow, and lasting stringhalt is the effect.

Of course no drug can reach the part affected; no cunning preparation can remove even a needle's point from the interior of the spinal canal. The stinghalt, once exhibited, is beyond cure, and never disappears but with the life. However, it mostly affects high-spirited, nervous horses, and not being generally observable during progression, some of the quadrupeds thus diseased sell for large sums.

PARTIAL PARALYSIS.

Paralysis, in the horse, save when it appears toward the termination of violent disorders, is never more than partial. It locates itself in the



THE UNSTEADY WALK OF A HORSE WHEN SUFFERING UNDER PARTIAL PARALYSIS OF THE HIND LEGS.

hind limbs, and, though it does not destroy all motion, yet it destroys all strength or utility. The power to move with speed is entirely lost, nor is the ability to progress at a slower pace by any means assured. One

hind foot is perpetually getting in the way of the other, and constantly threatening to throw the animal down, whose walk already is rolling or unsteady.

This affection is the property of matured animals; so rarely as to be exceptional is it to be seen attacking colts. Fast trotters, omnibus horses, hunters, and creatures subjected to extreme exertion, are most liable to it. It creeps on insidiously. At first the pace is as fast as ever; but something is suspected wrong in the manner of going. After a time the creature is brought to a veterinary surgeon as a lame horse. The suspicions are then destroyed and the real malady is announced.

The decay of the more showy powers seems to bring forward the gentler qualities of the horse's nature. The animal, which once was dangerous, loses all its dreaded attributes: with paralysis, it becomes meek or tame, as though the big life felt its great affliction and sought to compensate, by amiability, for the trouble it necessarily gave, or, in other words, that the animal was mildly pleading for existence. No doubt much of such a sentiment, if not all, resides in the mind of the spectator, the animal only being subdued by sickness. Still, it is very sad to contemplate the horse, which once could outstrip the sparrow in its flight, reduced to a pace which the tortoise might leave behind; to behold the beast, once powerful and proud of its strength, humbled to a feebleness which the push of any child might overthrow. It is more sorrowful, when we think its hurt was received from him to whom its welfare was intrusted; that its injury was the consequence of an over-anxiety to please and to obey. It may be well doubted whether, when man was given dominion over the beasts of the field, he was invested with an absolute authority over God's creatures, which had no moral duties nor obligations attached to it. At all events, it would be difficult to find an object more suggestive of pity, or better calculated to excite our inward reflections, than a horse suffering under partial paralysis.

Paralysis is generally past all cure; occasionally, however, it admits of relief. It is an eccentric disorder, and it is difficult to say, positively, what medicine will be of use. The horse, however, during paralysis, should enjoy absolute rest. In its disabled state, a little walk is as great an exertion as once was a breathing gallop; and it was over-exercise which induced the disorder. The animal should receive only strengthening physic and the most nourishing of food. The following ball should be administered, night and morning:—

Strychnia, half a grain, gradually, or in six weeks to be worked up to a grain and a half; iodide of iron, one grain; quassia powder and treacle, a sufficiency: to be given night and morning.

The grooming should be persevered with, the animal being carefully

dressed twice each day, and the process ending by brushing the quarters thoroughly with a new birch broom. The bed should be ample; the box should be padded, and a warm cloth always kept over the loins. A piece of wet flannel, covered with a rug, placed over the lumbar region, has on occasions induced a return of warmth. The bowels should be regulated, if possible, with mashes and green meat; but, when costiveness exists, a pint of oil is to be preferred to even three drachms of aloes. The one exhausts, the other nurtures as well as relaxes the body.

The hope of amendment must, however, be indulged with caution. The disease is of chronic growth, and therefore will be of long duration. At all events, it is not one horse in four which recovers from an attack of partial paralysis; and not one in twenty that is afterward fit for its former uses.

GUTTA SERENA.

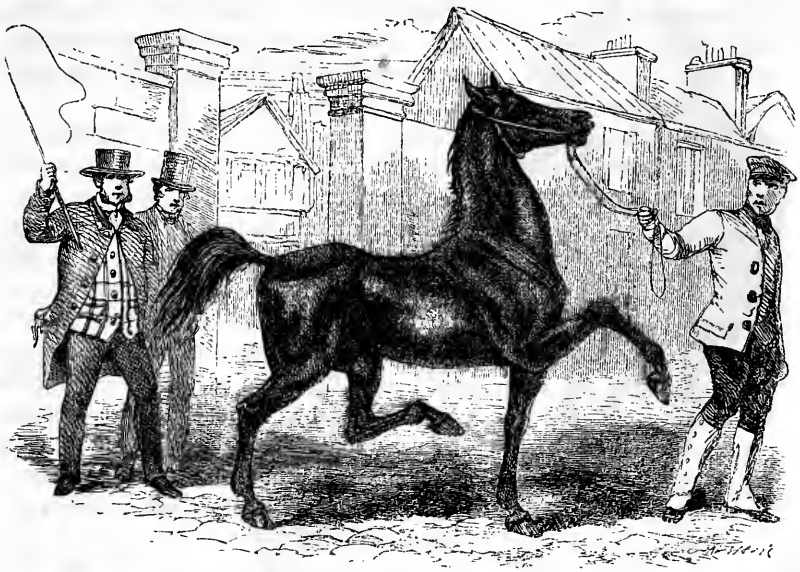
Gutta serena is fixed dilatation of the pupillary opening, owing to paralysis of the optic nerve; the affection is, consequently, accompanied by permanent blindness.

The causes of this malady are blows upon the head, quick driving, excessive hemorrhage, stomach staggers, unwholesome stables, poor food, exhausting labor, or anything which may decidedly undermine the constitution.

The majority of these causes are inflicted by man, the remainder are within his control. Any person has but to reflect how very precious eyesight is to mankind. Having settled that point, he has only to conjecture how much more dear it must be to a creature forbid to enjoy the pleasures of conversation. To take away sight, is to deprive the animal of a faculty with which it is endowed to perfection, in some measure to compensate for the absence of reason and the deficiency of speech. A horse can see farther than its master. The human eye is, frequently, dormant, when the thought is active: the healthy, equine eye never rests. The creature sleeps so lightly that very seldom is it caught napping. We may imagine, therefore, the gratification bestowed by an organ so constantly employed. To blind a horse, is to deprive a breathing body of half its life's pleasure. It is more, when we consider the natural disposition of the quadruped: it is to deprive timidity of its watchfulness, fear of its protection. It is even yet more, when we think upon the habits of the horse—its spirits, its pleasure, its joy—all are expressed by means of a gallop. But what speed can the horse indulge in, when cruelty has taken away the power to guide with rapidity? To destroy the horse's sight, is to condemn a creature to live on, but to take from life the gayety of existence.

The eye recently afflicted with gutta serena, or rather the eyes, (for this deprivation commonly affects both orbs,) is, to the uninformed inspection, perfect. The internal structures are in their proper places, and the pupil is beautifully dilated. A very little instruction, however, enables the spectator to distinguish between fixedness and dilatation. A trifle more tuition will point out that the pupil is not so dark as in the organ of the healthy animal: that it has an opaque milky cast, accompanied very frequently with a bright light-green shining through it, as though a piece of tinsel were within the posterior chamber. After gaining such information, probably the notion before expressed about beauty may be changed. Most things are most beautiful as nature formed them, and no little expression resides in the ever-changing dimension of the pupillary opening.

AN EYE AFFECTED WITH GUTTA SERENA.

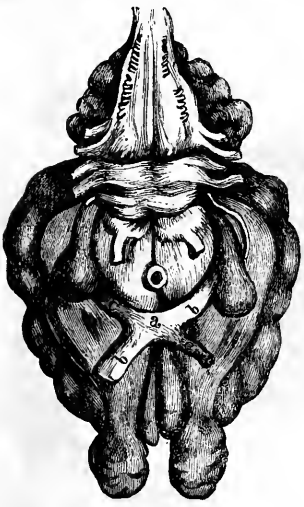


THE MODE IN WHICH A HORSE, WHEN QUITE BLIND, PROGRESSES.

The symptoms of blindness are equally pathetic and characteristic. The nostrils are constantly at work and the ears perpetually in motion—life is endeavoring, by exercising other senses, to compensate for the one lost. Then, the movements are peculiar. A blind man commonly

shuffles along, endeavoring "to feel" his way. The horny hoof lacks the human faculty, but the horse endeavors to surmount objects by stepping high. A blind man turns the sightless face heavenward; the animal, likewise, raises its head, as it were, to expose its sightless orbs to its Creator. There is another strange peculiarity also, exemplified by the blind horse. The sightless quadruped, contrary to the majority of its species, generally carries a rough coat in summer and a blooming coat in winter.

Now, a high stepper, a well-carried head, a lively ear, and a blooming coat, are great points in a horse, especially about London, and with gentlemen of little information. To prevent imposition, always place the horse in a full light. Should the pupils continue large, have the horse put into a dark house. A quarter of an hour afterward, take a candle, and by its light regard the eye. If the pupil is still dilated, hold the candle near to the eye. The iris will not contract quickly upon artificial light, but in five minutes it ought to move. However, suppose you imagine it to remain stationary; then, placing yourself by the head, have the horse led out into sunshine. If it exhibit no change to mark the passage from darkness to daylight you may certainly conclude the optic nerve is paralyzed.



THE BASE OF THE BRAIN.

a. The point of junction between the right and left optic nerves.
b b. The healthy optic nerve, of a white color, originating on the left side and proceeding to the left eye.
c c. The paralyzed or unhealthy optic nerve, diminished in size and darker in color. It ran to the right eye; but its diseased condition can be clearly traced to originate from the left side of the brain.

There are other tests, but these are not satisfactory; such as covering the eye with the hand or a hat. The hand is semi-transparent, and so can only induce partial darkness; the hat does not fit the inequalities of the horse's countenance, therefore it is useless. Of the same nature is aiming pretended blows at, or moving the hand before, the suspected eye. The other senses, by constant exercise, become so very acute during loss of sight, that winking is no proof of vision: the lid may move, and, nevertheless, the horse be stone blind.

Nothing can be done for paralysis of the optic nerve. The injury once established, its effects are lasting. Butchers and other people, who foolishly pride themselves upon their fast trotting steeds, and whose natures are not unpleasantly susceptible, often induce the affection. It lessens the value

of the horse, dooms it to a lower class of proprietors, and takes from the creature's life much of the pleasure which otherwise might lighten the animal's existence.

After death, an anatomical peculiarity is observed. The optic nerves, subsequent to leaving the brain, unite and exchange fibers. Neither nerve pursues an absolute course; yet, consequent on decease, if the right eye were blind from gutta serena, the left nerve, or the nerve originating from the left side of the brain, alone is affected: the disease seems confined to that part. The opposite nerve is perfectly white and healthy; but the one affected with paralysis is of a yellowish color, softer nature, and sensibly diminished in bulk. So, if blindness afflict both eyes, both optic nerves are then of diminished size and of a yellowish hue.

CHAPTER II.

THE EYES—THEIR ACCIDENTS AND THEIR DISEASES.

SIMPLE OPHTHALMIA.

THE following engraving illustrates some of the accidents which attend upon injured sight in the horse. The eyes are probably more important to the safety and pleasure of the master than any other portion of the quadruped's frame. Let the smallest impediment exist, and

SOME OF THE RESULTS OF IMPERFECT VISION.

there is no telling in what way it may operate. Certain horses are most affected by near objects; others exhibit alarm only when bodies are approaching them; another class of creatures will look upon most forward sights with indifference, but will invariably be horror-struck whenever the view is extensive; while a fourth group will shy violently without mortal vision being able to recognize any cause for terror. In every case, the dread excited overmasters all other feelings. The presence of extreme fear releases the horse from the dominion of its proprietor; its movements are sudden, jerking, and eccentric; the animal has lost all self-control, and there is no saying in what direction it may move or what it may attempt to do. It is regardless of its own life, therefore

it is careless about the welfare of others, and he is very fortunate who possesses such a servant and escapes without accident.

There is no cure for a disposition depending upon a change of structure; but there may be a preventive. Would all horse-owners preserve their tempers and forbear from slashing a horse over the head, they would be vast gainers in a pecuniary sense, and would certainly escape very many of those ills now commonly attendant upon equestrian exercises.

Whoever has a shying horse had better discard the creature from all private uses. Send the animal to some work in which the habit will be accompanied with less danger, or never allow the quadruped to quit the stable without having the sight securely blinded. Such things are necessary; but the feeling man, when he considers how much the exercise of the senses sweeten mere animal existence, will sigh over the order which compels him to deprive a horse of that which the common sense of the English has denominated "precious sight."

Simple ophthalmia is inflammation of the fine membrane which covers the horse's eye; it reaches no deeper, it does not affect the internal structures of the organ, and it is not so much to be dreaded in its immediate as in its after consequences. It is caused by accident and by the violence of man.

As the reader has walked the streets, he surely must have seen men indulge their temper by cutting a horse over the head with the whip. The animal capers about and shakes the ears, endeavoring to avoid the chastisement; the man becomes more enraged; the reins are pulled tight, while the master stands up in the gig, and for minutes continues chastising a creature that is bound to the shafts and comparatively at his mercy. Were the horse, thus tortured, to run away, the person who abused his authority would have provoked a severe retribution; but the animal has no such intention. The fault may be far more imaginary than real. The timidity of the horse prevents it from willfully inviting the dreaded lash; possibly the offense resides more with the individual invested with trust over life than with the creature that patiently submits to most unworthy control. At all events, the thong curls about the face; now it cuts the lips, in which the sense of touch resides; the pain is maddening, the horse capers and shakes its head, striving to avoid a repetition of the torture. The next slash, however, turns sharply round the blinkers and lights upon the eye; the horse is held tight, the man feels happy, he has discovered a tender place; the whip is plied again and again, always falling true. It hits the mark. When the animal reaches home, the lid of one eye is closed, and many tears have wetted the cheek, while scars remain after the immediate

consequences have passed; the vision is interfered with, and timidity becomes an inveterate shyer.

Also, from the manner in which the rack is placed, a hay-seed frequently falls into the eye. The hay is always kept in the loft above the stables, and a narrow trap-door opens into the rack. This is very convenient for the groom; how could any architect be so very "maudlin" as to design a stable with the slightest consideration for a horse? At every mouthful the head has to be raised and the provender pulled out; probably, human ingenuity could not invent a machine more likely to be attended with injury. The head uplifted, the eye open to direct the bite, the dry grass shaken to pull out the morsel, of course the loose particles are dislodged, and what wonder if one of the hay-seeds should fall into the open eye? This body is small, dry, harsh, and sharp; moved about by the motion of the lid it commits fearful ravages upon the tender organ to which it has found admittance, and simple ophthalmia is the consequence.

Man is too proud to learn from nature, or he might observe horses always depress their heads when in the field. The common parent, with care for all her children's comfort, makes the animal stoop to crop the herbage; man causes the creature to upraise and outstretch the neck to reach its sustenance. However, the horse is not always free from accidents when it quits the stall. Carters often amuse the weary way by striking what they term a "stubborn and foolish horse" over the head with the butt end of the whip. This action, though most irritating to witness, is generally less important in its results than any of the injuries previously remarked upon. The lid shields the eye; consequently, a largely swollen covering and a slightly injured membrane are the consequences.

Many brutal drivers have "a happy nack" of kicking at the head of a fallen animal to make it rise. This act may extinguish vision or provoke simple ophthalmia; but, it is hoped, all such are exceptional cases, therefore these are willingly not remarked upon.

Frequently horses try to while away the long hours of confinement by playing with one another; one horse will lean its head over the division to the stalls and for hours together lick its fellow prisoner's neck. Sometimes a day's rest begets high spirits, and the animals indulge in a more boisterous amusement; they bite and snap at one another's heads. Domestication has, however, disabled the creature to nicely measure distances; standing all day long with the nose close to a glaring white wall has probably impaired the vision. One horse projects its teeth too far; they simply graze the eye; but a small flap of membrane is the consequence. The bite of an enraged horse is fearful; and were not the

animal gently inclined, more than a minute portion of fine skin would testify its intention. Simple ophthalmia, accompanied with a small abscess upon the cornea, is the result.

The treatment of simple ophthalmia is somewhat homely. Put on a bridle, or a leather head-stall; or a halter will answer the purpose; fasten a cord loosely to either side, so that it may cross the forehead; on this line suspend a cloth several times doubled; but, mind it is large enough to cover both eyes, for the visual organs are so sympathetic, that when one is inflamed the other is very likely to exhibit disease. Keep the cloth continually dripping with the following lotion.

A READY MODE OF BLINDING A HORSE, AND OF APPLYING A LOTION TO THE EYES IN SIMPLE OPHTHALMIA.

Fill a two-quart saucepan with poppy heads, cover these with water; boil, till the poppy heads are quite soft; pour off the liquor, strain, filter, and, adding thereto one ounce of tincture of arnica, the preparation, when cold, is fit for use.

On the first morning, an inspection should be gently attempted; for the eye is generally so very tender, and the animal so resistful, that no examination at that time is generally satisfactory. On the following day, however, the lotion will have reduced the swelling, mitigated the agony, and have enabled the horse to be more obedient; then make another and a thorough examination. The skin upon the eye will be white and opaque, the lining of the lid inflamed, while numerous tears will pour down the cheek according to the severity of the injury. Remove any substance found underneath the eyelid. If the hay-seed or sharp particle shaken from the provender stick firmly into the outer covering of the eye, grasp it tightly with a pair of forceps, and endeavor to pull it out. Should it be fixed too deeply for any ordinary force to move it, do not exert all your power, but take a sharp-pointed knife, which is better than a lancet, because more under command, and placing its tip below the obstacle, with a motion, of the wrist oblige it to quit its situation or to come forth between the ends of the forceps.

AN EYE RECENTLY AFFECTED WITH SIMPLE OPHTHALMIA.

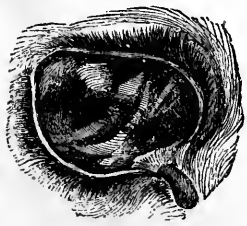
Should a flap of the cornea be left by a bite, probably pus will be secreted beneath it; the place must be watched till the local inflammation has subsided, and a spot of yellow, opaque matter can be detected

under the transparent membrane. With a slight incision the pus must be released and the eye bathed with a lotion composed of water and chloride of zinc, one grain to the ounce.

Other cases will rather be known by the variety of marks left behind than by any difference in their necessary treatment. A lotion is generally everything required; however, should the inflammation become excessive, it may be necessary to open the eye-vein or the vessel which, journeying toward its larger trunk, runs directly beneath and from the eye. When this prominent and visible vein is pierced, it frequently, although distended, will not bleed. Then place some favorite food upon the ground,—the bending of the head and the movement of the jaw will cause the current to flow forth freely.

It is among the most beautiful attributes of the horse, that though so very timid, it never suspects nor can it understand actual injury. Thus, the flowing of its own blood does not affect it; it is otherwise with other animals not more intelligent. If a dog or cat be hurt, no delicacy can tempt the creature to feed. The horse, when in battle deprived of its limb, is so accustomed to restraint and so unsuspicious of harm, that it has been found, after the strife was ended, maimed, and yet cropping the herbage about it. The generous beast, when domesticated, retains its gentle disposition, and soon forgets to recognize danger; it becomes attached to its superior, and though its treatment be coarse and its usage brutal, it can pardon all.

The consequences of simple ophthalmia are little, white, opaque spots upon the membrane. Streaks of the same sort are occasionally left upon the organ by the abuse of the whip; the amount of blemish, of course, will be decided by the original injury. Never purchase an animal thus disfigured; better buy a blind horse. The opaque places prevent many rays of light from reaching the optic nerve; the sight is irreparably impaired; the horse sees imperfectly; it may behold the head of a man, while the opaque scar conceals the body. Timidity takes alarm at the apparently spectral object. It has no reason to explain, and it wants intelligence to understand. The poor abused quadruped becomes a dangerous shyer.



HORSE'S EYE INJURED BY THE LASH.

SPECIFIC OPHTHALMIA.

Before we touch upon the subject which forms the heading to this article, we wish to establish one proposition, because it will smooth the way to an understanding between author and reader.

Man cannot make a property of life; he has no power over its continuance; it may cease to-morrow without his permission and against his wishes; it is removed from and independent of his control. Man can have nothing like a property in that which is altogether above his sway. He then, obviously, has no right to enslave any living creature, and take no care of the existence which he has deprived of liberty to provide for itself. When he captures a wild animal and retains it in captivity, he entails upon himself the duty of providing for its wants, and becomes answerable for its welfare. He violently usurps nature's province—obviously, he adopts nature's obligations; if he rebel against such a moral contract and persist in viewing dominion as absolute authority, as something which invests him with power to feed or starve at his pleasure, house or turn into the air according to his will, nature opposes such arrogance, and, releasing the life by death, takes the oppressed creature from the tyranny of the oppressor.

Under some such compact the horse is given to man. The implied, not written obligation, may not be acknowledged or understood; but, nevertheless, it exists, and the terms of the bond are rigidly exacted. Let us regard this matter in relation to specific ophthalmia. A gentleman possesses five horses; he builds a stable twenty feet long, twelve feet wide, and nine feet high; into this place he crams the five huge lives. We will suppose the place to be good of its kind, to be paved with Dutch clinkers and to be perfectly drained; still each horse stands in a stall four feet wide; in this it has to remain all night and the major portion of the day. In this space it has to relieve its body; the liquid, to be sure, may run off by the drain, but it has to fall upon straw, which imbibes some, and to flow over bricks, which absorb more; the solid excrement is during the day removed by the groom as it falls, but it remains in an open basket to taint the air of the place. We will suppose the horses and their attendants, occasionally, are the sole inhabitants, and the building contains none of those things, living and otherwise, which ladies are pleased to order should "be carried into the stable."

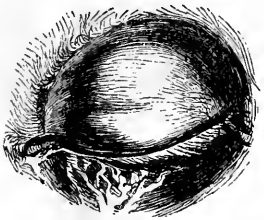
THE SPECIES OF EYE WHICH IS GENERALLY SUPPOSED TO BE MOST LIABLE TO OPHTHALMIA.

Will the sane reader assert that the space is large enough for its purposes? The stable never can be sufficiently ventilated: it will smell of impurity—of hay, straw, oats, ammonia, and of various other things. The air feels hot. Can it be wondered at? Ten large lungs have been breathing it for weeks and years, during twenty out of every twenty-

four hours. Five huge creatures have been cabined there, living by day, sleeping by night, feeding and performing all the other offices of nature. Is it astonishing that the air feels and smells close? Ought we not rather to wonder that animal life can exist in such an atmosphere? The chief contamination is ammonia; ammonia will not support vitality. The reader has inhaled smelling salts; those are purified carbonate of ammonia; have these not made the eyes water? The ammonia of the stable affects the eye of the horse; it also undermines the constitution; but, by constantly entering upon the lungs and stimulating the eyes, it causes the constitutional disease to first affect the visual organs; in short, specific ophthalmia is generated.

Now, to prove the case here stated. In the south of Ireland, where poverty prevails, humanity is obliged to shelter itself in strange places, and any hole is there esteemed good lodging for a horse. In that part of the kingdom ophthalmia affects the majority of animals; it not only preys on horses, but it seizes upon mankind; for the author, a few years ago, was much struck by the quantity of blind beggars to be encountered in the streets of Cork. Here we have the conclusion of the argument; its moral exemplified and enforced. If animals are foully housed and poorly kept, they generate disorders, which at length extend to the human race; therefore he who contends for a better treatment of the horse, also indirectly pleads for the immunity of mankind from certain diseases. Man cannot hold life as a property, or abuse life without his ill deeds by the ordinances of nature recoiling on himself.

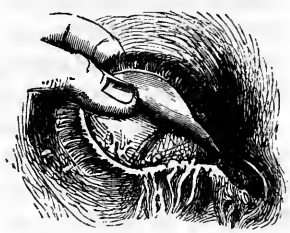
Specific ophthalmia is a constitutional disease affecting the eyes; it has been submitted to all kinds of rude treatment; no cruelty but has been experimented with; no barbarity but has been resorted to. It has been traced to various sources; its origin has been frequently detected; but the real cause of the disease, to this day, has not been recognized. The veterinary surgeon is often sent for to just look at a horse which "has got a hay-seed in its eye." This mistake is very common, as ophthalmia generally breaks forth during the long night hours, while the stable is made secure and the confined air is foulest. The groom sees an animal with a pendant, swollen lid, and with a cheek bedewed by copious tears; he can imagine only an accident; but the medical examiner must obey the summons with an unprejudiced mind, because simple ophthalmia is a mere misfortune, specific ophthalmia is a constitutional disorder.



THE FIRST APPEARANCE OF SPECIFIC OPHTHALMIA.

The veterinary surgeon, firstly, in the groom's convictions, makes a grievous mistake. He goes up to the horse on the opposite side to the affection; being there, he takes the pulse, remarks the breathing, observes the coat, feels the feet, examines the mouth, and looks at the nasal membrane. If simple ophthalmia be present, some of these may be altered from long-endured pain; but if specific ophthalmia exist, the general disturbance denotes a constitutional disorder. The pulse is hard, the breathing sharp, the coat staring, the feet cold, the mouth clammy, and the nasal membrane inflamed or leaden-colored.

The horse is next ordered round to the stable window, with the diseased eye toward the light. A pretense is then made of forcing the lid open; if simple ophthalmia be present, the resistance is energetic, but not violent. Should specific ophthalmia be the affection, the horse struggles against the intimation with the wildness of timidity, striving to escape a terrible torture. The animal is, thereupon, brought into some shady corner; its fears are allayed, and it permits the lid to be raised with little difficulty. Should the eye have been injured by an accident, the most prominent part of the ball is likely to be hurt. The internal structures are unaffected; the pupil generally is larger than usual, and the iris is unchanged. The haw may be or may not be projected; but the color, form, and aspect of the iris is unaltered. During the commencement of specific ophthalmia, the center of the cornea may be transparent, but the circumference of the ball is violently inflamed; the reason being that a constitutional disorder always first attacks the more vascular structures, and, therefore, commences in the



RAISING THE UPPER LID OF AN EYE AFFECTED WITH SPECIFIC OPHTHALMIA.

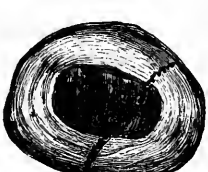


DIAGRAM OF THE EYE IN SIMPLE OPHTHALMIA. THE DARK LINE INDICATES THE EXTENT TO WHICH HAW MAY PROTRUDE.

DIAGRAM OF THE HORSE'S EYE WHEN SUFFERING FROM SPECIFIC OPHTHALMIA.

loose conjunctiva, covering the white of the globe. In specific ophthalmia, the color of the eye has changed to a lighter hue, and the pupillary opening is firmly closed, to prevent the entrance of the dreaded light.

Weakness increases as specific ophthalmia progresses. The attack, however, is seldom stationary; the eye first involved may suddenly become clear and healthy, and the opposite organ may exhibit the ravage of the disease; thus, the affection keeps rapidly moving about; when it suddenly quits both eyes, the inflammation commonly fixes upon some distant part of the body, as the lungs or feet. No one can predicate how short will be its stay or how long the attack may last; it has disappeared in a week, it has continued two months. It seldom reaches its climax during the first assault. It will occur again and again; generally it ends in the destruction of one or both eyes; but never, so far as the author's knowledge extends, causes gutta serena. Like scrofulous affections in the human being, which it greatly resembles, it generally is the inheritance of youth; after maturity or after the eighth year has been attained, it is rarely witnessed.

When this terrible affliction visits a stable, let the proprietor firmly oppose all active measures. A shed ought to be procured, cool or shady, and screened on every side, excepting on the north. Every hole, however minute, should be stopped, because light shines through a small opening with a force proportioned to its diminutiveness. The stars and candles in the once popular London Diorama were only small holes cut in the canvas.

The eye-vein is then to be opened, and the lid, if much enlarged, punctured in several places; when the bleeding has ceased, a cloth, saturated in cold water, is to be put over both eyes. As to other remedies, they must be regulated by the condition of the animal. Should it be poor, oats and beans, ground and scalded; cut green meat; gruel made of hay-tea, etc., should be given. No dry fodder must be allowed; all the provender must be so soft that mastication may be dispensed with. The movement of the jaw, sending blood to the head, is highly injurious during an attack of specific ophthalmia.

Let the following ball be given twice, daily:—

Powdered colchicum	Two drachms.
Iodide of iron	One drachm.
Calomel	One scruple.

Make into a ball with extract of gentian.

Observe the teeth while this physic is being taken. The author has taken twenty-five grains of calomel daily, for a month, with impunity; lately, he was slightly salivated by two grains, when not expecting any effect. Mercury, therefore, operates in accordance with the system; it is strong or weak as the body is sickly or robust.

Should the animal be fat, do not therefore conclude that it is strong;

obesity is always accompanied with debility. But if the horse be a hunter or a racer, in training condition, still give the medicine prescribed, with soft food, not quite so stimulating, and the ball twice daily. However, as soon as the medicine begins to take effect, which it will do soonest upon the weakly, change it for:—

Liquor arsenicalis	Three ounces.
Muriated tincture of iron	Five ounces.

Mix, and give half an ounce in a tumbler of water twice daily.

Do not bother about the bowels; endeavor to regulate them by mashes and with green meat; if they should not respond, do not resort to more active measures. Should the pulse be increased, a scruple of tincture of aconite root may be administered every hour, in a wineglass of water; should the pain appear to be excessive, the like amount of extract of belladonna may be rubbed down in a similar quantity of water, and be given at the periods already stated; only always be content with doing one thing at a time. Thus reduce the pulse, for, with the lowering of the vascular action, the agony may become less intense; however, so long as the beats of the artery are not more in a minute than sixty-five, and not very thin or hard, the aconite should be withheld, for during an acutely painful disorder the heart must be in some degree excited.

The grand measure, however, remains to be told. Remove every horse from the stable in which the attack occurred; then elevate the roof, widen the gangway, and enlarge the stalls; improve the ventilation, overlook the drains, lay down new pavement—in fact, reconstruct the edifice. It is felt that, in giving these directions, a proposal is offered to demolish a building. The author is fully alive to the expense of such a transaction; but one valuable horse will pay for a great deal of bricks and mortar. Experience has decided that the most humane way is, in the long run, the cheapest method of proceeding. Ophthalmia is a teasing and a vexatious disorder. If the owner has no feeling with the inhabitants of his homestead, still let him study his own comfort, for it is astonishing how very much good stabling adds to the appearance and to the happiness of a mansion.

Specific ophthalmia does not terminate in death; it usually leaves the victim blind in one or both eyes. In England, however, it is mostly satisfied with the destruction of one organ; the strength of the other becoming, after its departure, considerably improved. At the same time, having caused the lids to swell, it leaves them in a wrinkled or a puckered state; the remaining eye is likewise somewhat sensitive to light. To gain in some measure the shadow of the brow, and to escape the full glare of day, the eye is retracted; all the muscles are employed

to gain this end, but the power of the levator of the upper lid causes the eye to assume somewhat of a three-cornered aspect.

It is always desirable to recognize the animal which may be or may have been liable to so fearful an affection. One symptom of having experienced an attack is discovered on the margin of the transparent cornea. The inflammation extends from the circumference to the center. The margin of the transparent ball is generally the last place it quits; here it frequently leaves an irregular line of opacity altogether different to and distinct from the evenly-clouded indication of the cornea's junction with the sclerotic, which last is natural development.

AN EYE DISPLAYING THE RAVAGES OF SPECIFIC OPHTHALMIA.

Nevertheless, the internal structure best display the ravages of specific ophthalmia; it is upon these the terrible scourge exhausts its strength. The eye becomes cloudy; loses its liquid appearance; the black bodies attached to the edges of the pupillary opening either fall or seem about to leave their natural situation. The pupil becomes turbid, then white; the iris grows light in color, and at last remains stationary, having previously been morbidly active. The whiteness of the pupil grows more and more confirmed, and every part grows opaque; by this circumstance, the total cataract, arising from specific ophthalmia, is frequently to be challenged. The lens, moreover, is often driven, by the force of the disease, from its position; it lodges against the inner surface of the globe. Very common is a torn or ragged state of the pupil witnessed, as was stated, during the intensity of the attack, for the iris contracts to exclude the light; remaining thus for any period, it becomes attached to the capsule of the lens; when the disease mitigates, it often rends its own structure by its efforts to expand. Should those efforts prove unavailing, the pupillary opening, as sometimes happens, is lost forever.

TERMINATION TO SPECIFIC OPHTHALMIA.

In the previous description of disorder, no mention has been made of the cartilago nictitans, or haw, or third eyelid, as it has been called. This thin body is very active, and resides at the inner corner of the eye; of course, in a disease under which the eye is pained by light, the haw is protruded to the utmost. In ophthalmia, however, it is covered by an inflamed membrane, and though in health its movements are so rapid that it may easily escape notice, yet in this disease it lies before

the eye, red and swollen; this substance it was once common for farriers to excise, under a foolish notion of removing the cause of the disorder.

The use of the cartilago nictitans in the healthy eye will now be explained. Let the reader inspect any of the illustrations to this article; he will find the outer corner represented as being much higher than the inner corner of the eye, where the active little body resides. Under the upper lid, near to the outer corner, is situated the lachrymal gland, which secretes the water or tears of the eye.

Suppose any substance "gets into the eye;" being between two layers of conjunctiva, it creates much anguish, it provokes constant motion of the lid, which in its turn causes the lachrymal gland to pour forth its secretion. Liquid flowing over a smooth globe of course gravitates; the substance "in the eye" is thus partly washed and partly pushed toward the inner corner.

Now, the base of the cartilago nictitans rests upon the fat at the back of the eye. Pain causes the globe to be retracted by spasmodic jerks; adipose matter cannot be compressed, and it is therefore driven forward every time the muscles act. The fat carries with it the cartilago nictitans, and the edge of the body being very fine and lying close to the globe, shovels up any foreign substance that may be within its reach, to place it upon the rounded development at the inner corner of the eye. Still may the reader inquire, if the cartilago nictitans is covered with conjunctival membrane, and the inner corner of the eye is enveloped in the same, does not the foreign substance occasion pain to these as it did to the globe of the eye? No; it was just hinted that conjunctiva is not sensitive except two layers of the membrane are together, as the ball and the inner surface of the eyelid. The haw, therefore, has no sensation upon its external surface, neither has the inner corner of the eye, whence all foreign bodies are quickly washed by the overflow of tears.

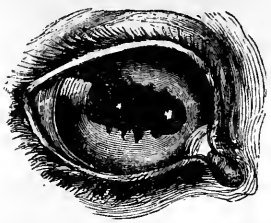
Farriers, however, are not an extinct race; many of the fraternity still exist, still practice, and are, it is to be feared, very little improved. Should one of these gentlemen offer to cure specific ophthalmia, it is hoped the owner, after the foregoing explanation, will not allow the "haw" to be excised.

Let every man treat the animals over which he is given authority with kindness, as temporary visitors with himself upon earth, and fellow-inhabitants of a striving world. Let him look around him; behold the owner of a coveted and highly-prized racer to-day, in a week reduced to the possessor of a blind and wretched jade; then ask himself what kind of property that is to boast of, which may be deteriorated or taken from him without his sanction? Having answered that question, let him inquire whether it is better to propitiate the higher being by showing

tenderness toward his creatures, or to defy the power which can in an instant snatch away his possessions.

CATARACT.

Cataract is a white spot within the pupillary opening. The spot may be indistinct or conspicuous,—soft, undefined or determined; it may be as small as the point of a needle, or so big as to fill the entire space: in short, any indication of whiteness or opacity upon the pupil is regarded as a cataract.



PARTIAL CATARACTS, OR SMALL WHITE SPECK WITHIN THE PUPIL OF THE EYE.

Cataracts are designated according to the parts on which they reside. The lens of the eye is contained within a capsule, as an egg is within its shell. Any whiteness upon this capsule is termed a **capsular cataract.** The lens floats in a liquor which surrounds it, as the white does the yolk of an egg. Any turbidness in this fluid is termed a **milky cataract**; any speck upon the lens is a **lenticular cataract**; and any little glistening appearance behind the capsule is spoken of as a **spurious cataract.**

Moreover, there are the **osseous,** the **cartilaginous,** and the **opaque cataracts**; but those distinctions rather concern the anatomist than the pathologist, as they may be guessed at, yet are not to be distinguished with certainty one from another, during life.

That which more concerns the reader is, to learn the manner, if possible, of preventing cataract from disfiguring his horse's eyes. Then will the gentleman be kind enough to hold a sheet of white paper close to his nose, so that the eyes may see nothing else, for a single half hour. Let us suppose the trial has been made. With many people the head has become dizzy and the sight indistinct. In some persons singing noises are heard and a sensation of sickness has been created. Let the author strive to explain this fact. Travelers, passing over the Alps, wear green veils, to prevent the strain or excitement which looking upon a mass of white snow occasions the visual organs. Any excitement is prejudicial to the eye. Workers at trades dealing in minute objects, often go blind, and the use of the miscroscope has frequently to be discontinued. But to look continuously upon a white mass is the most harmful of all other causes.

This fact must be considered as established. And what does the horse proprietor have done to his stable? He orders the interior to be whitewashed. It looks so clean, he delights to see it; but do the horses—does nature equally enjoy to look upon those walls of "spot-

less purity?" Before those walls, with its head tied to the manger, stands the animal through the hours of the day. Close to its nose shines the painful whiteness which the master so enjoys. Is it, then, surprising (seeing how nature for its own wise purposes has connected all life) that the equine eye, doomed to perpetual excitement, sometimes shows disease?

A horse with imperfect vision is a dangerous animal. A small speck upon the lens confuses the sight as much as a comparatively large mark upon the cornea. To render this clear, let the reader hold a pen close to the eye; it prevents more vision than yonder huge post obstructs. So impediments are important, as they near the optic nerve. The lens is nearer than the cornea, and therefore any opacity upon the first structure is more to be dreaded.

However, let it be imagined a horse, with an opacity upon the pupil, and the sight confused by staring at a white flat mass spread out before it, is led forth for its master's use. By the aid of the groom and its own recollections, it manages to tread the gangway, and even to reach the well-known house door in safety. The owner, an aged gentleman, of the highest respectability, comes forth in riding costume. He mounts, and throwing the reins upon the neck of the animal, sets his nag into walking motion, while he, erect and stately, looks about him and proceeds to pull on his gloves. The horse, however, has not gone many steps before the cataract and the confused vision, acting conjointly, produce alarm. The steed shies and the gentleman loses his seat, being very nearly off. The passengers laugh, the proprietor suffers in his temper, but the whip is used, and the equestrian is soon out of sight.

The man and horse proceed some distance; the gentleman becomes much more calm, and the horse recovers sufficient composure to try and look around it. The pace now is rather brisk, when the horse thinks, or its disabled vision causes it to imagine, it sees some frightful object in the distance. The timid animal suddenly wheels round. The rider is not prepared for the eccentric motion: he is shot out of the saddle. He falls upon his head; he is picked up and carried home; but afterward he avoids the saddle.

Never buy the horse with imperfect vision; never have the interior of your stable whitewashed. Then what color is to be employed? Probably blue would absorb too many of the rays of light; at all events, it seems preferable to copy nature. Green is the livery of the fields. In these the eyes take no injury, although the horse's head be bent toward the grass for the greater number of the hours. Consequently, the writer recommends that green wash, which is cheap enough, should be employed, instead of the obnoxious white, for the interior of stables.

For complete cataract nothing can be done. In man, operation or couching may be performed with success; but the horse can retract the eye and protrude the cartilago nictitans. Thereby difficulties are created; but these may be overcome. However, when an opening through the cornea is perfected, the spasmodic contraction of the muscles of the eye, acting upon the fibrous covering of the globe, is apt to drive forth the liquid contents of the organ in a jet: this is irreparable, of course. When so fearful a catastrophe does not ensue, still the capsule of the lens is always difficult to divide, and the lens itself cannot easily be broken down. The lens, therefore, must be abstracted; but that necessitates a large incision, which the previously named probability forbids. Displacement is the only resort left; but the lens, when forced from its situation into the posterior or dark cavity, is, by the contraction of the muscles, forced up again. The uncertainty of the result, even when the operation is successfully performed, is peculiarly disheartening. Half lose their eyes in consequence of the attempt; half the remainder are in no way benefited; to the rest, as these cannot wear spectacles to supply the place of the absent lens, of course the pain endured becomes useless torture.

COMPLETE CATARACT.

Where partial cataract is feared but cannot be detected, then artificially dilate the pupil. Rub down two drachms of the extract of belladonna in one ounce of water. Have this applied, with friction, to the exterior of the lids and about the eye; mind none gets into the eye. The belladonna, acted upon by the secretions, turns to grit; inflammation is the consequence, and the clearness of the cornea is impaired. When the belladonna is properly used, it dilates the iris and exposes the margin of the lens, thus enabling the practitioner to inspect the eye in a full light.

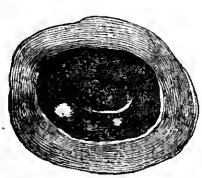


DIAGRAM ILLUSTRATING THE ACTION OF BELLADONNA.

The inner space represents the natural pupil, on which no cataract is to be observed. The second space represents the pupillary opening as it may be enlarged by the application of belladonna, whereon two partial cataracts are to be remarked. The other space merely represents the dilated pupil.

To tell a spurious cataract, which defect is never permanent, first observe the spot. Note if it present any metallic appearance, and try whether, as the horse's head is moved, it alters in shape, catching irregular lights. Then inspect the exterior of the eye; see if it retain any signs of recent injury. Subsequently endeavor, so far as may be possible,

to ascertain the exact position occupied by the defect: upon all this evidence put together, make up your opinion.

To distinguish between the different kinds of cataract, apply the belladonna. Next place the horse near a window or under a door. Should the sun shine, have the animal led into the full glare of day. Look steadily into the eye from different points of view. Then have the horse's head moved about, all the time keeping your sight fixed upon the part you are desirous of inspecting.

Should one spot continue in every position, of one bulk, and of one aspect, never becoming very narrow and always occupying one place throughout the examination,—it is a lenticular cataract that is beheld.

If the whiteness changes appearances, in some positions seeming very thin or perceptibly less bulky, it is assuredly a capsular cataract which is inspected.

Most cataracts may either be partial or complete; but a spurious cataract is always partial, never permanent, and invariably caused by violence.

DIAGRAM ILLUSTRATING THE DIFFERENT KINDS OF CATARACT.

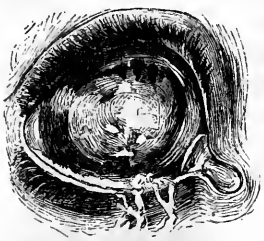
1. A capsular cataract or an opacity, situated on the envelope of the lens.
2. A lenticular cataract or an opacity, within the substance of the lens.
3. A spurious cataract, or a particle of lymph adhering to the inner surface of the lenticular capsule.

For spurious cataract, treat the injury to the exterior of the eye. For other cataracts, do nothing: there is no known medicine of any beneficial effect. However, it is well to add, the author's and the general opinion favors the absorption of cataract; or that these opacities may appear and after a time go away without the aid of medicine. Nevertheless, to hasten such a process, have the interior of the stable colored. However much in favor a clean white wall may be with grooms or with the lower order, exercise an informed judgment; have the wall shaded of the tint most pleasant to the inhabitants' sight, and the prospect of recovery will by so trivial an outlay be materially facilitated.

FUNGOID TUMORS WITHIN THE SUBSTANCE OF THE EYE.

These, fortunately, are rare affections. We know of no immediate cause for their production. No man can prophesy their appearance. The horse, to human judgment, may enjoy the top of health; may be in flesh and full of spirit—altogether blooming. Nevertheless, the action of the legs may perceptibly grow higher, and the ears become more active. The animal will wait to be urged or guided, when the road is

clear. Also, it may run into obstacles, when the rider does not touch the rein. Should anything be left in the gangway of the stable, it is certain to be upset, by what the groom terms "that clumsy horse." Sometimes it will stand for hours together neglecting its food, with the head held piteously on one side. Occasionally, when at grass, it may be found separated from its companions, alone and dejected, with the head as before, held on one side, while the waters of the eye copiously bedew the cheek.



FUNGUS HÆMATOIDES, OR CANCEROUS GROWTHS WITHIN THE SUBSTANCE OF THE EYE.

At last the eyes are examined. The eyeball may be clear, but some brilliant yellow substance may be discerned shooting from the base of the interior, and the horse is declared contaminated by a cancerous disease.

All is now explained: the sight is lost; the horse is blind. There are three terrible decisions now left to the master. Is the life to be shortened? The thought shudders at taking existence, when misery pleads for consolation. Is the animal to live on and nurture to maturity the seeds of a cancerous disease? The mind shrinks from subjecting any creature to the terrible depression and hopeless agony attendant upon such disorders. Is an operation to be performed? Shall the surgeon extirpate the eye? This last proposal seems the worst of all; nor does inquiry improve the prospect. The cancer does not entirely reside within the eye; it is not limited to that part. The taint is in the constitution, and the operation can do no more than retard its effect. The eye removed, the cancerous growth will soon fill the vacant orbit After two or several months of dreadful suspense, the life at last will be exacted, and the animal, worn out with suffering, will expire.

Under such circumstances, the writer recommends death, before the full violence of the disease is endured. Should, however, the reader think differently, and prefer the extirpation of the eyeball, the operation will here be described. First, mind the operator has two knives not generally kept by veterinary surgeons: one of small size and slightly bent to one side; the other larger, and curved to one side till it has nearly reached a semicircle. Mind the operator has everything ready before he begin: a sharp scalpel, two straight triangular-pointed needles, each armed with strong twine; one curved needle, similarly provided; sponge, water, injecting tube, bellows, lint,—and all things at hand. It is necessary the proprietor should see to this, as some men will commence an operation upon a mere horse and be obliged to stop in the middle, not having brought all the instruments which they may require.

Cast the horse. Impale both eyelids, each with one of the straight needles, and leave the assistant to tie the thread into loops. Through these loops the assistant places the fore-finger of each hand, and then looks toward his superior. The sign being given, the man pulls the eyelid asunder, while the surgeon rapidly grasps the straight knife and describes a circle round the globe, thereby sundering the conjunctival membrane. The knife is then changed, the small curved blade being taken. The assistant again makes traction, and the knife, being passed through the divided conjunctiva, is carried round the eyeball, close to the bone; the levator and depressor muscles are detached by this movement. The assistant again relaxes his hold; the operator relinquishing the knife, selects the curved needle. With this the cornea is transfixed. The thread is drawn through and is then looped. Into this loop the surgeon puts the fore-finger of his left hand, and giving the sign once more to his assistant, takes hold of the large bladed knife. Traction is made on all the loops. The curved knife is inserted into the orbit, and, with a sawing motion, is passed round the organ. The posterior structures are thereby divided, and the eye is drawn forth.

EXTIRPATION OF THE EYE.

The operation ought to be over in less time than five minutes; but speed depends on previous preparation. The assistant, during the operation, should rest his hand upon the horse's jaw and face; sad accidents by that means are prevented; but, above all things, he should be cool, doing just what is sufficient and no more.

Some hemorrhage follows the removal of the orb; to stop it, inject cold water into the empty socket; should that have no effect, drive a current of air from the bellows upon the divided parts; if this be of no avail, softly plug the cavity with lint, bandage the wound to keep in the dressing, and leave the issue to nature.

Such is the undisguised operation for extirpating the horse's eye. The reader is confidently asked, whether a few months of miserable existence, with the certainty of a fearful death, are not dearly purchased at so great a suffering?

LACERATED EYELID.

Horses frequently endeavor to amuse the weary hours by a playful game with one another; if accident results, it is not wholly the fault of the guileless animals; they are tied to the mangers; they cannot exert their activity; otherwise their principal enjoyment resides in the freedom of their heels. And looking at a blank mass of monotonous white for many hours may have disabled the sight or have confused the judgment.

The groom being absent, advantage is taken of the event to have a romp. The animals snap at one another over the divisions to their stalls; often the amusement extends, and four or five heads may be beheld united in the sport. Generally, however, the game is confined to two players; but, either way, no injury is meant; the teeth rattle, but they are intended to close upon empty space. However, man has to bear the consequences which his errors provoke. That species of confinement to which horses are subjected renders the judgment uncertain and the sight untrue. The animal pretends to snap, but, either from one head not being removed quick enough or from the other head being protruded too far, the teeth catch the eyelid and divide it through the center. The injury is not very serious, for had malice impelled the assault, much more than an eyelid would have been grasped between the jaws.

In other cases, the groom has driven nails into the wall of the gangway; grooms are fond of seeing the stable decorated with pendant objects of various kinds. So long as the nails are occupied, little danger ensues; but they are apt to be left vacant, and horses are constantly passing along the gangway. To leave room for the servant obliges the animal, very often, to keep close to the wall; the projecting nail catches the lid of the eye, and a long rent, commencing upon the outer side, usually results.

EYELID TORN BY A NAIL.

Such an injury creates great alarm, but it is less serious than it appears to be. Let the wound, from whatever cause it springs, be well bathed with a soft sponge and cold water; this should be done till the bleeding ceases. Afterward, the wound should be let alone for two or three hours, that the edges may become partially sticky; then let there be procured a long piece of strong thread, having a needle at each end; the needles should be new, very sharp, and of the stronger sort employed by glovers. Let all the punctures be made from within out-

ward, to avoid injuring the eyeball, and a separate needle be employed for each divided surface. The thread being brought through, cut off the needles, and loop, but do not tie the thread. Proceed with another suture, and do not tie that; then with another, observing the same directions, and thus, till the eyelid has a sufficient number of sutures. Then proceed to draw all to an even tightness—none should be absolutely tight. The parts ought only to be approximated, not tied firmly together; well, all the sutures being of equal size, they are fastened, and the operation is concluded.

But as the wound begins to heal it is apt to itch, and the horse will often rub the eye violently to ease the irritation. To prevent this, fasten the animal to the pillar-reins of its stall, and let it remain there till the wound has healed; the injury will in a short time close, but the sutures should be watched. When the holes begin to enlarge, the thread can be snipped. If the punctures be dry, let the divided sutures remain till nature shall remove them. If they are moist, and the wound appears united, you may try each thread with a pair of forceps; should any appear loose, then withdraw it, for after division it can be of no use, and may provoke irritation; however, should it be retained, employ no force; have patience, and it will come forth without man's interference.

Feed liberally, regulate the bowels by mashes and green meat; smear the wound with oil of tar to dispel the flies; for should the accident happen during the warmer months, these pests biting and blowing upon so delicate a part as the eye may occasion more harm than our best efforts can rectify. When the lid is bitten through, the operation is precisely similar; the divided edges are to be brought together by sutures. To prevent needless repetition, an engraving of the bitten lid, after the operation has been performed, is here presented.

THE LID, WHEN DIVIDED BY THE TEETH, BROUGHT TOGETHER BY MEANS OF SUTURES.

IMPEDIMENT IN THE LACHRYMAL DUCT.

The **lachrymal duct** in the horse is a small canal leading from the eye to the nostril; it commences by two very minute openings near the terminations of the upper and lower lids, at the inner corner of the eye; it emerges upon the dark skin which lines the commencement of the horse's nostril, being on the inner side of the internal membrane.

Its use is to carry off the superflux of tears; hence, with human beings, who have a like structure, "much weeping at the theaters provokes loud blowing of noses."

The channel being so minute, any substance getting into it soon becomes swollen with the moisture and closes the passage. The tears cannot escape, and being secreted, flow upon the cheek. The perpetual stream pouring over a part not designed for such uses, causes the hair to fall off, and thus forms gutters, along which the fluid continues to run. The flesh at length excoriates, and numerous sores are established; the lids swell and become raw at the margins; the conjunctiva reddens, and the transparency of the cornea is greatly lessened by the spread of inflammation.

A HORSE'S HEAD, DISPLAYING OBSTRUCTION OF THE LACHRYMAL GLAND.

The wretched animal in this condition presents a very sentimental appearance to a person ignorant of the facts of the case. The swollen lid, because of its weight, is permitted to close over the eye, while the tears, flowing fast upon the cheek, with the general dejection, gives the creature an aspect of weeping over some heavy affliction.

Like the late William Percivall, whose works on veterinary subjects remain a monument to his memory, the author has encountered but a single case of this description; it was in a matured but not a very aged animal. The report was, that a year ago it had been attacked by influenza; the lid then enlarged, and the near cheek had been wet ever since.

Referring to the pages of Percivall's "Hippopathology," the author procured a thin, elastic probe, about twelve inches long; the horse being cast, and an assistant holding the upper lid, the probe was introduced at the inner corner of the eye, by the lower opening to the duct; the entrance was easy enough, but the passage was soon obstructed; then the probe was inserted at the opening of the duct within the nostril. The way in this direction was longer, but the end came at last, without any good being effected. Next, a syringe being charged, the fine point was introduced up the nasal termination of the duct, the power of the jet effectually removing every impediment; the water streamed through the upper openings, and the horse was sent home cured.

The writer saw the animal six months subsequent to the operation; it was apparently in excellent health, and obviously in amended condition. The owner said the horse soon got well after it reached home; but,

being pressed to say how great a duration "soon" represented, he rejoined "*about* six weeks, *perhaps*."

Three months afterward, however, the horse was once more brought with "watery eye," and again operation was successful. The proprietor then received back and soon sold the creature, which being past the age when horses are most valuable, seemed likely to become an expensive retainer.

CHAPTER III.

THE MOUTH—ITS ACCIDENTS AND ITS DISEASES.

EXCORIATED ANGLES OF THE MOUTH.

Let no man punish a horse for want of obedience; the sole use of the creature and its only delight is to obey. Let no person abuse it for having a hard mouth, or for not answering to the rein. Man had the formation of the mouth, and its condition can be no fault in the possessor; the horse's pleasure is the gratification of its master. Observe the antics of the nag thoroughly trained and perfectly up to the rider's point of jockeyship. Does not every fiber seem to quiver with excess of happiness? There is a tacit understanding between man and horse; the pretty arts and graceful prancings of the animal tell how joyful it is made by the conviction that it is sharing man's amusement. But let the equestrian dismount, and another, above or below the horse's educational point, assume the saddle, that understanding no longer exists. The harmony is destroyed; there is no intelligence between horse and man. All the playfulness disappears; the entire aspect of the animal is changed, and it sinks to a commonplace "ugly brute."

The majority of drivers are very particular about the horse's mouth; yet they all abuse the animal as though it was their desire to destroy that which each professes to admire. Every supposed error is punished with the lash, but the whip can convey no idea; the lash does not instruct the animal; beat a horse all day, and it will only be stupid at sunset. All the horse can comprehend from the smart is a desire that the pace should be quickened; that wish it endeavors to comply with. The person who guides the vehicle generally becomes fanatic at such perversity; he begins "jagging" and "sawing" the reins. The iron is violently pulled against the angles of the mouth, or rapidly passes from one side to the other. Would the owner or driver take the trouble to instruct his dumb servant in his wishes, the poor drudge would rejoice to exhibit its accomplishments. But no information is communicated by first urging and then checking; the timidity is increased by the one, the angles of the mouth are excoriated by the other.

Ladies' horses invariably have admirable mouths; ladies generally are very poor equestrians, yet they encounter few accidents. Men, who ride better, are oftener thrown and hurt. The gentleness of the woman, or the sympathy existing between two gentle beings, produces this effect

The horse is never dangerous when not alarmed; the feminine hand pats the neck of the steed; the feminine voice assures the timidity; the whip never slashes; the reins are never converted into instruments of torture; the weight is light and the pace is easy. A perfect under-

VARIOUS MODES OF FORMING THAT WHICH ALL MEN SPEAK OF WITH ADMIRATION, AS A "GOOD MOUTH."

standing is soon established between the two, and the rider, notwithstanding her weakness, her indifferent jockeyship, and her flapping dress, sits the saddle in safety, while the animal increases in value under her care.

Man certainly does not gain by the contrast; the male treatment does not improve the animal. The horse's memory, like that of most dumb creatures, is very tenacious; the quadruped is not made more steady by ill usage; the sore corners of the mouth oblige the animal to be laid up "for a time," and the expense of medical treatment increases the sacrifice consequent upon loss of services.

Trouble attends the circumstance, at which the favorite groom is sure to grumble, even if the master does not receive "notice." The food must be prepared; a few oats thrown into the manger, and a little hay forked into the rack will not now suffice; all the provender must be carefully prepared. At first, good thick gruel and hay tea must be the only support. In a few days, boiled and mashed roots may be introduced; these may be followed by cut roots boiled, but not mashed, the whole being succeeded by scalded hay with bruised and mashed oats. When all is done however,

EXCORIATED ANGLES OF THE MOUTH.

the horse's temper is not improved, and its mouth is decidedly injured. Such results will vex the temper of any good groom, and very many it will anger to the throwing up of their situations. They "will not get a horse into beautiful condition for master only to spoil."

When the horse is thus injured, ignore all filthy ointments; such things consist of verdigris, carbonate of zinc, horse turpentine, blue, green or white vitriol, mixed up with dirty tallow or rank lard. Now, to grease a horse's teeth is not much worse than to tallow its lips; if the former prevent it from feeding, the latter is not calculated to improve the appetite.

Discarding all unguents, have the following lotion prepared:—

Chloride of zinc.	Two scruples.
Water	Two pints.
Essence of aniseed	A sufficiency.

Pour some of this into a saucer, and, with anything soft, apply the lotion to the sore places; do not rub or scrub; do your ministering gently; so the parts are wet, no further good can be accomplished; use this wash after every feeding or watering. In a little while amendment is generally perceptible; where violence has been used, it is impossible to foretell the extent of the injury. A superficial slough may be cast off; this process is attended with fetor; that the lotion will correct, and thus add to the comfort of the horse. The cure, however, will possibly leave the horse of a lessened value; where the skin has been destroyed it is never reproduced; the wound will, therefore, probably blemish, and may lead a future purchaser to suspect "all sorts of things." The horse is certainly deteriorated; with the skin the natural sensibility of the part is lost. A cicatrix, consisting only of condensed cellular tissue, must form upon the spot; this structure is very feebly, if at all, nervous, and when compared to the smooth and soft covering of the lips, may be said to be without feeling, and is very liable to ulceration.

PERMANENT BLEMISH AND DESTRUCTION OF THE NICE SENSIBILITY OF THE MOUTH.

PARROT-MOUTH.

This, strictly speaking, is not a disease; it is a malformation; the upper incisors, from those of the lower jaw not being sufficiently developed, meet with no opposing members; they consequently grow very long, and from their form are likened to the bill of a parrot.

This formation is not unsoundness, but it cannot be a recommendation; the horse can only gather up its corn imperfectly; much falls from the

mouth during mastication. The animal which requires four feeds and a half daily to support the condition another maintains upon four feeds, must be the more expensive retainer of the two. Moreover, it is a virtue in a horse to thoroughly clear out the manger; a healthy animal not only licks out corners to catch stray grains, but hunts among the straw for any corns that may have fallen. This duty the parrot-mouth disables a horse from performing; the good feeder alone is equal to the work.

COPIED FROM THE AUTHOR'S WORK, ENTITLED "THE HORSE'S MOUTH," PUBLISHED BY MESSRS. FORES, PICCADILLY.

Besides, a rider is always pleased, when sauntering down the green lanes during the spring of the year, to see the horse's neck stretched out to catch a twig of the shooting hedge; this can do no harm; but it is hard alike upon horse and man to always have a tight hold of the rein when the fresh scent of the budding thorn tempts the mouth to its enjoyment. And yet, in the majority of instances, it would be cruelty to yield and permit the parrot-mouth to bite; the under teeth very often rest against the palate. No more need be said to caution owners possessed of an animal thus afflicted, against a natural indulgence. The parrot-jaw is a deformity for the perpetuation of which man is responsible; dispositions and formations are hereditary. Would the owners of stock only exercise some judgment in their selections, this misfortune might speedily be eradicated.

LAMPAS.

The horse's lot is, indeed, a hard one; it is not only chastised by the master, but it also has to submit to the fancies of the groom. "**Lampas**" is an imaginary disease, but it is a vast favorite among stable attendants. Whenever an animal is "off its feed," the servant looks into the mouth, and to his own conviction discovers the "lampas." That affection is supposed to consist of inflammation, which enlarges the bars of the palate and forces them to the level of or a little below the biting edges of the upper incisor teeth.

THE LAMPAS IRON.

Would the groom take the trouble to examine the mouths of other young horses which "eat all before them," the "lampas" would be ascertained to be a natural development; but the ignorant always act upon faith, and never proceed on inquiry. Young horses alone are supposed to be subject to "lampas;" young horses have not finished teething till the fifth year. Horses are "broken" during colthood; they are always placed in stables and forced to masticate dry, artificial

food before all their teeth are cut; shedding the primary molars is especially painful; of course, during such a process, the animal endeavors to feed as little as possible. A refusal to eat is the groom's strongest proof that lampas is present. But, putting the teeth on one side, would it be surprising if a change of food and a total change of habit in a young creature were occasionally attended with temporary loss of appetite? Is "lampas" necessary to account for so very probable a consequence? The writer has often tried to explain this to stable servants; but the very ignorant are generally the very prejudiced. While the author has been talking, the groom has been smiling; looking most provokingly knowing, and every now and then shaking his head, as much as to say, "ah, my lad, you can't gammon me!"

Young horses are taken from the field to the stable, from juicy grass to dry fodder, from natural exercise to constrained stagnation. Is it so very astonishing if, under such a total change of life, the digestion becomes sometimes deranged before the system is altogether adapted to its new situation? Is it matter for alarm should the appetite occasionally fail? But grooms, like most of their class, regard eating as the only proof of health. They have no confidence in abstinence; they cannot comprehend any loss of appetite; they love to see the "beards wagging," and reckon the state of body by the amount of provision consumed.

The prejudices of ignorance are subjects for pity; the slothfulness of the better educated merits reprobation. The groom always gets the master's sanction before he takes a horse to be cruelly tortured for an imaginary disease. Into the hands of the proprietor has a Higher Power intrusted the life of His creature; and surely there shall be demanded a strict account of the stewardship. It can be no excuse for permitting the living sensation to be abused, that a groom asked and the master willingly left his duties to another. Man has no business to collect breathing life about him and then to neglect it. Every human being who has a servant, a beast or a bird about his homestead, has no right to rest content with the assertions of his dependents. For every benefit he is bound to confer some kindness. His liberality should testify to his superiority; but he obviously betrays his trust and abuses the blessings of Providence when he permits the welfare of the creatures, dependent on him, to be controlled by any judgment but his own.

BURNING FOR LAMPAS.

The author will not describe the mode of firing for lampas. It is sufficient here to inform the reader that the operation consists in burning away the groom's imaginary prominences upon the palate. The living and feeling substance within a sensitive and timid animal's mouth is actually consumed by fire. He, however, who plays with such tools as red-hot irons cannot say, "thus far shalt thou go." He loses all command when the fearful instrument touches the living flesh: the palate has been burnt away, and the admirable service performed by the bars, that of retaining the food during mastication, destroyed. The bone beneath the palate has been injured; much time and much money have been wasted to remedy the consequence of a needless barbarity, and, after all, the horse has been left a confirmed "wheezer." The animal's sense being confused, and its brain agitated by the agony, the lower jaw has closed spasmodically upon the red-hot iron; and the teeth have seized with the tenacity of madness upon the heated metal.

When the lampas is reported to you, refuse to sanction so terrible a remedy; order the horse a little rest, and cooling or soft food. In short, only pursue those measures which the employment of the farrier's cure would have rendered imperative, and, in far less time than the groom's proposition would have occupied, the horse will be quite well and once more fit for service.

INJURIES TO THE JAW.

Save when needless severity urges timidity to madness, the horse is naturally obedient. This is the instinct of the race. The strong quadruped delights to labor under the command of the weaker biped. Its movements are regulated by him who sits above or behind it. It often waits for hours with its head pulled backward, its mouth pained, and its eyes blinded. All its learning is attention to the sounds of the human voice. It is guided by touches. It submits to the whip when it might easily destroy the whipper. It eats, it drinks, it rests only by man's permission. Yet there are such words as "vice" and "spite" connected with the horse; but there remains to be spoken the word which shall fitly characterize the self-sacrificing life of the noble animal.

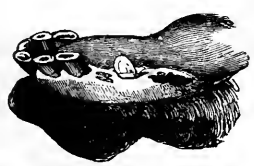
Man could not endure such tyranny, nor does the horse, notwithstanding its submissive instinct, live under it very long. The majority perish before they are eight years old. They are worked to an early grave—often they are distorted before the body's growth is completed. Is there any other life so serviceable? Is there any other life which reads so sad a moral? For the time it is allowed to breathe and labor, the horse patiently obeys its tyrant. It aids his vanity; it conforms to his pleasure; it devotes strength, will, and life to man's service.

Let every owner of a horse treat his slave with gentleness. Above all things, let no individual employ the reins as instruments of torture. The horse will neither be wiser nor better for such a mode of punishment. Besides, the man may deteriorate his own or another's property. With the bit a jaw has been broken; and with the snaffle the bone has been injured. An animal with a good neck carries the chin near to the chest. The iron of the snaffle, therefore, cannot pull against the angles of the mouth. It rests upon the gums, and because this point is by some disputed, the following illustration of the fact is inserted.

THE SNAFFLE BEARING UPON THE LOWER JAW.

The cruel bit is, however, in general use with carriage horses. Fashion delights in a vehicle stopped smartly at a door. The greatest noise possible then announces the new arrival. The wheels grate—the horses struggle. The coachman pulls hard—the vehicle sways to and fro. The footman jumps down and pulls at the bell as though life and death depended on a speedy answer to his summons.

All this is, doubtless, very pleasant, but how does it operate upon the poor horses? These, to be pulled up suddenly, must be thrown upon their haunches by the unscrupulous use of the bit. The pressure often wounds more than the gums; frequently the bone of the lower jaw is bruised. The gum then must slough, and a portion of bone must be cast off. The exfoliation of bone is a tedious process accompanied with an abominable stench. The surgeon must be constantly in attendance; otherwise the gum might close over the exfoliating bone and numerous sinuses might be established within the mouth. The exfoliated substance must come away. The abscess, which would announce its retention, would be more painful than the open wound, and ultimately would turn to a foul and ragged ulcer. Such an injury may occur wherever the bit rests, before or behind the tush, and a similar injury, though not to the same extent, will result from an unscrupulous use of the snaffle.



THE EFFECTS PRODUCED ON THE LOWER JAW BY THE ENERGETIC USE OF THE SNAFFLE OR BIT.

The most forward and smaller mark indicates the injury usually done by pulling at the snaffle. The more backward dark place indicates the spot where tugging at the bit bruises the bone of the lower jaw.

Supposing a case of this description is submitted to your notice upon the day succeeding its occurrence. No change is anticipated, such as

would denote a bruise to other structures. The covering to the gums is thick and hard, and it will conceal much that may be taking place beneath it. If any spot be darker, redder, or whiter in color,—if any place be more sensitive than the adjacent parts, the knife is there inserted till it grate upon the bone. The extent of the necessary incision is decided by the efforts made in resistance. A thin fluid may issue from the orifice; but when the knife grates upon the bone, then the animal's struggles announce the extent of the bruise. Sound bone may be cut, scraped, or even burnt with impunity; but when bruised or otherwise diseased, the structure is most acutely sensitive.

When the wound emits its characteristic odor, a lotion composed of chloride of zinc, one scruple; water, one pint; ess. of aniseseed a sufficiency, should be syringed into the openings, several times during the day. The lotion, also, has a tendency to heal the sores, which must be counteracted by the employment of the knife. Occasionally, however wide the incision, it may be too small for the cast off bone to escape from. The knife again must enlarge the orifice, and the forceps be inserted to grasp the exfoliated substance. That taken away, the lotion is continued and the injury left to heal at Nature's pleasure.

INJURY SOMETIMES ACCOMPLISHED WITH THE PORT OF THE BIT.

The late W. Percivall, in his excellent work, entitled "Hippopathology," describes horses as sometimes injured under the tongue by the port of the bit. An engraving, representing such an injury, is given; but it is hoped no gentleman of the present day would employ the severe invention by which alone such a hurt could be produced. The consequences may be lasting. The terminations of the sublingual ducts are included in the blackness. Were these bruised and inflamed, their delicate mouths might be obliterated and hopeless fistula be established.

The bit must be sharply and strongly tugged at before it can harm the roof the mouth. Any one who has seen horses pulled up before a fashionable mansion must have observed them open wide their mouths. They do this to escape the wound of the bit. The animals extend their jaws to prevent it striking the roof of the mouth. Notwithstanding the existing age is more civilized than those which preceded it, the bits used at the present time can, without any vast display of genius, be made to injure the obedient animal, for whose mouth such ferocious checks are forged. An injury thus inflicted is sufficiently

THE UPPER JAW INJURED BY THE BARBAROUS USE OF THE BIT.

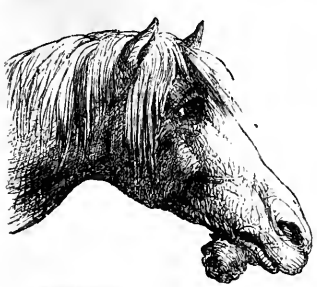
serious. The bony roof not only supports the bars, but also forms the solid floor of the nostrils. As it is not very thick, the greater is the danger when it is injured. The wound, because of the unyielding substance on which it is inflicted, is more painful than that of the lower jaw. It is also for the same reason more severe.

The last injury demands the same treatment as has already been described, only the remedies are far more difficult to apply. Should the entire portion of bone exfoliate and a hole be left behind, the consequence is not of fatal import. Bone can reproduce itself, though it is somewhat eccentric in its growth. So after the opening is closed, the surface toward the nostrils may be uneven, and the horse be rendered an inveterate wheezer.

When the animal is once injured, never, for your own safety, afterward employ a bit. If it be ridden or driven, always use a snaffle, and use even that most tenderly. The horse has vivid recollections, and man is naturally forgetful. When power is entrusted to the oblivious, danger is apt to be close at hand.

The inferior margin of the jaw-bone is liable to harm from the curb chain, and some men *will* have the curb chain tight. Such people are commonly very imperious. They shout, and slash, and tug when they want obedience from an animal whose delight is to be allowed to please. Their meaning is seldom comprehended, and therefore their orders are rarely obeyed; whereas, they would be humbly propitiated, were their commands only given as though the animal had no interest to rebel.

The result of such violence is, from the curb chain being ruthlessly jerked, the jaw-bone soon enlarges. A portion of the bone having been bruised, has to exfoliate; a foul abscess forms; tumor speedily succeeds to tumor; osseous structure is thrown out and a swelling is matured, before the enlargement heals.



TUMOR PROVOKED BY THE ABUSE OF THE CURB CHAIN.

The treatment of such a case is similar to that already directed. Keep the wound freely open, to permit the unimpeded exit of exfoliated bone. Use the lotion, previously directed, liberally and constantly. The healing process may then take place without deformity being left behind

APHTHA.

Nothing proves the sympathy which binds nature more strongly than the sameness or similarity of the diseases that affect man and animals. Tetanus, pneumonia, enteritis, etc. are so alike as to be the same in the human being and in the horse. From the cow was derived the safeguard from the ravages of the small-pox, and the medical profession has, by its want of feeling, more than recognized a likeness, linking humanity to the dog; in the motive which alone could prompt abuse of a most affectionate animal.

It is a sad proof of the stubbornness of pride, that a unity, thus enforced by suffering, should be ignored, as though it were an insult to the superior. No compact, founded by nature, can be dependent upon man's liking. The terms may be laughed at, scorned or denied, but these exist. Man is declared in affliction to be the companion of other life. When will this truth be acknowledged, and the entire family of nature live in one brotherhood?

Aphtha is a human disorder as well as an equine disease. It generally appears in spring and autumn, being produced by heat of body. May not a slight attack of aphtha sometimes explain that which the groom intends by lampas? At all events, aphtha is accompanied by dullness and a refusal to feed. Both lips commonly swell as the lethargy increases; the tongue tumefies, becomes decidedly red, and generally hangs out of the mouth, partly for the sake of coolness, partly to accommodate its enlarged size. Around the mouth little lumps break forth, which at first are stony hard, and others, though of a larger size, may be felt upon the tongue. Vesicles are soon developed from these spots, and each contains a small quantity of clear gelatinous fluid. The bladders burst; crusts form; and by the time these fall off, the complaint has disappeared.

APHTHA.

Some good thick gruel and a few boiled roots, which should be repeatedly changed, must constitute the nourishment while the disease lasts, or during the period that the mouth is sore. No medicine; a little kindness is now worth a ship load of drugs. When the pimples are about to burst, the following may be prepared:—

Borax	Five ounces.
Boiling water	One gallon.
Honey or treacle	Two pints.

When the mixture has cooled, hold up the horse's head and pour

half a pint into the mouth. Half a minute afterward remove the hand; allow the head to fall and the fluid to run out of the lips. This mixture should be used several times during the day. Beyond this nothing is needed, excepting a cool, loose box, a good bed, body and head clothing, with flannel bandages, not too tight, about the legs. Work should on no account be sanctioned until the last vestige of the disorder has vanished, and its attendant weakness has entirely disappeared.

LACERATED TONGUE.

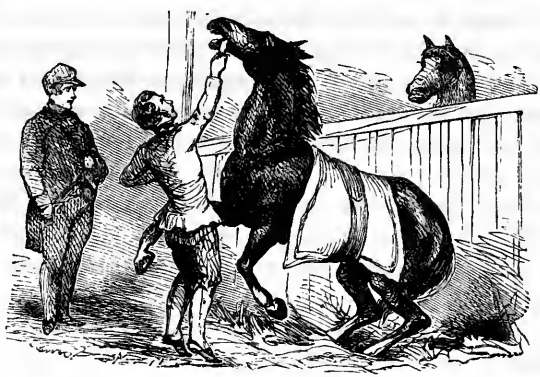
Men who become proprietors of animal life undertake a larger responsibility than the generality of horse owners are willing to admit. They are answerable for their own conduct toward the dumb existence over which they are legally invested with the right of property; they are also morally accountable for the conduct of those to whose charge they entrust their living possessions. The appearance of those men who congregate about the stable doors of the rich is not very prepossessing. Their looks express cunning far more than goodness. Their long narrow heads denote none of that wisdom which alone can comprehend and practice kindness for its own sake. Their eyes and actions have a quickness at sad variance with the affected repose of their manners. Their dress declares a vanity, that is much opposed to the humility in which a wise man loves to confide.

There is nothing about horses which should degrade men; yet it cannot be denied, that the vast majority of stable men are rogues. How can this be accounted for? Is it difficult to understand, when we see the unlimited trust put into a groom's hands, and the common abuse of confidence by the man who enjoys it? No slave proprietor possesses the power with which the groom is invested. It is true, the slave owner can lash the flesh he terms his property. However, there is in humanity a voice which puts some limit to the ill usage of the negro. The groom can beat and beat again, at any time or in any place. No voice can be raised in appeal to nature. The groom's charge lives beneath him, and day or night is exposed to his tyranny. He may chastise the body and steal the food, still, so no human eye detect, the horse will quietly look upon the wronger it never can accuse.

A good man would seek far, before he would repose so large a trust in another person. The *gentleman* generally engages the groom after a trivial questioning. His desire is to have a servant entirely corrupt; one who asserts a knowledge how to *trick* animals into health. No examination is made into the real character of the applicant. A vast confidence is off-hand reposed in an individual who may be without a

single moral attribute. Who deserves blame for such an abuse of responsibility? He who has been educated into knowingness, and, having become thoroughly degraded, esteems himself fully qualified for the situation he demands to fill, or he who, having the benefit of education, and being blessed with leisure for self-inquiry, shirks his duty and transfers his authority to unworthy hands?

Every groom fancies he knows how to compound something he calls a condition ball,—that is, a certain mixture of drugs, which shall bring a living body suddenly into "tip-top" health. A bevy of companions are invited to see "Jim give a ball." They duly arrive, and part of the horse's tongue is speedily made to protrude from the mouth, this portion being firmly held by "Jim's" free hand. The condition ball is in "Jim's"



STICKING TO A HORSE.

other hand, and the exhibition consists in the marvelous adroitness with which the ball can be introduced between the animal's jaws. The horse soon sympathizes with the excitement that surrounds it. Jim, "quick as lightning," makes a thrust with the ball, whereupon the startled animal raises the head and retreats. "Stick to him, Jim!" "stick to him!" shout the visitors. Jim does stick to him until his hand is covered with blood, or, without quitting its gripe, suddenly loses the resistance, which constituted its hold. Should it be the former, the frœnum of the tongue is ruptured, and a wetted sponge soon clears the hand of the groom as well as the mouth of the horse. A general curse and a kick under the belly of the rebellious steed end the amusements for one day. Should it be the latter, Jim finds the larger portion of the quadruped's tongue left in his hand. This is an awful accident. The blood is wiped off, and the groom next morning goes to his master with, "Please, sir, see what 'Fugleman' has done in his sleep!"

A farmer engages a pretty-looking stable boy. The young scamp is sufficiently a groom to glory in nothing so much as deception. The farmer, however, takes this pretty boy to the fair, where an additional horse is purchased. With the new "dobbin" the boy is entrusted, being cautioned to lead it gently home. With numerous protestations boy and horse depart, but have barely reached the suburbs before the knowing youngster stops "dobbin," and, twisting the halter in "a chaw," leads the animal to the nearest gate, where the lad climbs upon its back.

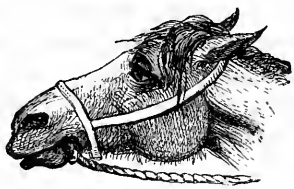
"A chaw" is the slang short phrase for something to chew. This is made by twisting the halter into the animal's mouth so as to encircle the jaw. In this position the rope is thought by some knowing people to answer the purposes of a bridle. To this rope the boy hangs, rolling to either side; now, nearly off—and now, jerked from his seat, as "dobbin," after repeated urgings, starts off into the lazy pretense at a trot.

Anything inserted into a horse's mouth provokes the curiosity of the animal. It is felt and poked about with the tongue, till at last the lingual organ is, by the exercise of much ingenuity, inserted beneath the obstacle. In this state of affairs, "dobbin" and the pretty boy finish the latter half of the journey. The youngster laughing, as the rough action of the horse bumps him up and down, he all the time dragging at the halter. Before home is reached, night has set in; the boy dismounts, and with all the simplicity his face can assume leads "dobbin" to the homestead.

The boy is protesting about being so very tired after his long walk, when the horse's mouth is discovered to be stained with blood. The youthful expression of surprise exceeds that of the elder's. Next the halter is found to be rich with the same fluid. The horse's mouth is then opened, it is full of blood, and the tongue nearly cut through. Accusations are made against the lad; at first they are replied to with defiance; at last they are propitiated with tears, drawn forth by the idea of honesty being suspected. Youthful knowing, however, is not in the long run a match for the self-interest of age; and perseverance is rewarded by a full confession.

"The chaw" is an artifice recognized in every stable. Grooms have their tastes. It is very unpleasant to these gentry when they behold some unmannerly horse hang back in the halter. Stalls are drained into a main channel, situated at the edge of the gangway. The pavement on which the animal stands consequently slants from the manger to the footpath. This nice arrangement obliges the horse always to stand with the toes in the air and throws the weight of the body upon the back sinews. To ease its aching limbs the animal is apt to go to the extent of its rope, so as to place the hind feet upon the gangway, and

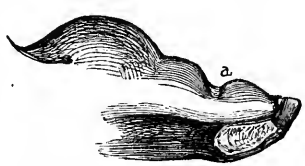
even occasionally to give the toe an opposite direction by allowing it to sink into the open drain. Such presumption horrifies the groom's sense of propriety. The ignorant mind's idea of beauty is "everything to match." He thinks all is so nice when the animals dress to a line, like soldiers on parade. To have this line preserved, even in his absence, he puts "a chaw" into the refractory "brute's" mouth. This chaw is to be preserved night and day. The tongue soon gets under the rope. Timidity is rendered yet more fearful by persecution. The voice of the groom has become a terror to the quadruped. It hangs back for ease, and is surprised by the vehement exclamation of the tormentor. Back goes the neck and up goes the head. The animal runs to its manger, but something has fallen upon the floor! The horse was luxuriating in hanging back to the full extent when surprised. The sudden start jerked the halter rein, and the result is the free portion of the tongue falls from the mouth, severed by the rope.



ABUSE OF THE HALTER.

These are lamentable instances of the general behavior of grooms to the creatures entrusted to their care. Nothing is so corruptive as misplaced authority. A little mind knows no difference between the possession of power and the indulgence of tyranny. The use and the abuse are synonyms to the ignorant; and the sins committed principally reside with him who places the life Heaven has entrusted to his care in such unworthy custody.

When a tongue is partially divided, do not insert sutures of any kind. Metallic sutures wound the fleshy palate, and silk sutures soon slough out. Neither, therefore, does good, and each serves to confine the food which enters the division. Foreign matter irritates a wound and retards its healing. Consequently, do nothing to the tongue when partially divided. Feed the patient on gruel until the healing is complete, and wash out the mouth thrice daily, with some chloride of zinc lotion, one scruple of the salt to a pint of water, after the manner described in the preceding article.



THE TONGUE HEALED AFTER HAVING BEEN DEEPLY CUT BUT NOT SUNDERED.

The jaw has been divided to show the injured tongue, as it would appear in the mouth.

a. The indentation at the seat of injury, and which will remain so long as life shall continue.

Should the tongue be separated to that extent which divides the vessels, then, with a knife remove the lacerated part, which otherwise being deprived of support, must slough off. Still do nothing to the tongue

afterward. Feed on thick gruel and wash out the mouth with the lotion. A horse with half a tongue will manage to eat and drink, but some food is spilt and some left in the manger. Constant dribbling of saliva is the chief consequence of such an injury. This is unpleasant, and arises from deglutition being injured. A horse which has had the tongue lacerated only, but not divided, forever retains the evidence of the injury; and as the food is apt to accumulate at the point of union, the animal ever after demands attention subsequent to every meal.

TEETH.

No fact is more discreditable to humanity than the small attention it has wasted upon the beautiful lives entrusted to its charge. Mortal pride asserts these creatures are given man for his use. Yes. But is the full use obtained? Are not the lives sacrificed? The horse has been the partner of mankind from the earliest period. For centuries at least the animal has been watched throughout the day; yet, even at this time, equine disorders are only beginning to be understood. Does this fact denote that care which such a charge demanded?

Cutting the permanent teeth seems, in the horse, to be effected at some expense to the system; it was a favorite custom with the farriers of the last century to trace numerous affections to the teething of the animal. Further inquiries have proved our grandfathers knew positively nothing about those growths, concerning which they assumed so much. The late W. Percivall traced sickness in the horse to irritation, arising from cutting of the tushes; there, however, our knowledge ends. Veterinarians have not, as a rule, either leisure or the necessary power to observe those animals it is their province to treat; they generally are but passing visitors to the stables into which they are called. Those who have studs of horses nominally placed under their charge feel they are retained not to watch, but to physic the animals to which the groom directs their attention.

The tushes of the upper jaw may, however, be fully up, and yet not have appeared in the mouth; this fact is easily explained. The advent of the tushes provoked acute inflammation of the membrane covering the jaw. The horse was cured of the attendant constitutional symptoms, but the cause of the disorder was mistaken. The acute inflammation changed into chronic irritation. The membrane, which in the first instance should have been lanced, thickened and imprisoned the tush beneath it; an incision is even now the only remedy, and should instantly be made.

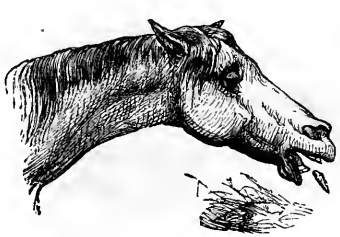
Neither tushes nor incisors are known to be exposed to other accidents; it is, however, different with the molar teeth. These teeth consist of

three components; bone or ivory constitutes the chief bulk of the organ, and over that is spread a thin covering of inorganic enamel, the whole being invested with a fibrous coating of crusta petrosa. The enamel is the material on which the tooth depends for its cutting properties; the manner in which the edge is preserved deserves attention, for the bricklayer's trowel appears to have been suggested by it. A thin coat of hard but brittle enamel is held between the two other bulky and tough substances, just as a thin layer of steel is protected by coatings of yielding iron in the house-builder's instrument.

The highly organized crusta petrosa is often injured; to understand this, we must first comprehend the vast power which urges the jaw of the horse. The motion resides entirely in the lower portion of the skull, which is moved by strong, very strong muscles, going direct from their attachments to their insertions. No force is lost by the arrangement, and no less a motor power was required to comminute the hays and oats on which the horse subsists. The machinery seems to be admirably adapted to its purposes; and to be so strongly framed as to defy all chance of injury. Man, however, has a mighty talent for evil; it does not always suit the convenience of the groom to sift the pebbles from the grain; corn and stones are hastily cast into the manger, and the poor horse, having no hands to select with, must masticate all alike. The reader can imagine the wrench which will ensue, when a flint suddenly checks the movement of the molar teeth. The crusta petrosa is bruised upon the large fang of the tooth. Disease is established, and sad toothache has soon to be endured.

A HORSE WITH TOOTHACHE.

Then there are the effects of the powerful acids in much favor with most grooms and too many veterinary surgeons; moreover, there are the sulphates, which in every possible form enter into veterinary medicine; the nitrates, likewise, are much esteemed, and are given in enormous doses. All of these much affect the crystalline enamel of the molar tooth; a small hole is first formed; into this the food enters and there putrifies; caries and toothache are the result.



A HORSE QUIDDING, OR ALLOWING THE FOOD TO FALL FROM ITS MOUTH SUBSEQUENT TO MASTICATION.

A horse with toothache upon certain days sweats and labors at its work; saliva hangs in long bands from the under lip; the countenance is utterly dejected; the head is carried on one side or pressed against some solid substance, as a wall. The food is "quidded"—that is, it is partially masticated, when, from acute agony, the jaws relax, the teeth separate, the lips part, and the morsel falls from the mouth, more or less resembling what is termed "a quid of tobacco."

Upon other days the animal is bounding with life and spirits; the movements are light, and the motions are expressive of perfect happiness. The head is carried jauntily; the lips are compressed; the saliva ceases to exude; the food is devoured with an evident relish, and the general health appears to be better than it was before the strange disease. The continuance of such bliss is, however, very doubtful; the different stages will often succeed one another with vexatious rapidity.

If nothing be done, the horse alternates between anguish and happiness for an unascertained period, when all acute symptoms apparently cease. The lips, though no longer actually wet, are not positively dry; the food is often eaten; but as time progresses a sort of gloom hangs about the animal, and deepens every day. The horse seems never free from some unaccountable torture; more time is now occupied in clearing the manger; then the hay may be consumed, but the oats remain untouched. These last are found soaked in apparent water; the fluid turns out to be saliva; the symptoms by degrees become more severe; a strangely unpleasant odor characterizes the breath; the flesh wastes, and the animal ultimately exhibits hide-bound.

This stage being attained, and the proprietor becoming much perplexed, he is one morning informed by the groom, who displays many nods and winks, of a certain mysterious receipt for a wonderful ball that never fails, but always cures. The potent bolus is sent for to the chemist, and, after sundry explanations, is compounded. The groom, stiff with pride, takes the magic morsel; it is pushed rapidly into the horse's mouth; an exclamation from the man follows the disappearance of the hand, which is retracted bathed in blood.

A MOLAR TOOTH HAS BECOME VERY LONG FROM THE WANT OF ATTRITION IN THE OPPOSING JAW.

To afford time for the writer to explain this incident, the reader must vouchsafe some patience. The horse's molar teeth are miniature grindstones. To supply the wear and tear of so violent a service, the molar teeth, originally, have enormous fangs, and, as the eating surface is worn

away, the fangs are thrust into the mouth by the contraction of the jaw-bones.

Caries at first pains, but at last destroys all feeling or life in the tooth; the dead organ ceases to possess any vital quality; it loses all power of self-preservation, and is a mere piece of dead matter opposed to a living agent. In consequence, it breaks away, while the opposing molar projects more forward from the absence of attrition. The healthy tooth at last bears against the unprotected gum, upon which it presses severely, and provokes the greatest agony. The animal endeavors to prevent the prominent tooth from paining the jaw by masticating entirely upon the sound side. Hunger is slowly, and perhaps never, satisfied by such imperfect comminution; the outside of the upper molars and the inside of the lower molars become slanting; the first being almost as sharp as razors, wound the membrane of the mouth and lay open the hand which is thrust into the cavity.

THE MOLAR TEETH HAVE BEEN GROUND SLANTING, AND HAVE SHARP EDGES, FROM THE HORSE MASTICATING ONLY UPON ONE SIDE.

If the disease be still neglected and permitted to increase, the stench grows more formidable; nasal gleet appears; the discharge is copious, accompanied by a putrid odor; osseous tumors commence; the bones of the face are distorted; the eye is imprisoned, and ultimately obliterated within the socket by actual pressure; eating becomes more and more painful, until starvation wastes the body and reduces the horse to a hide-bound skeleton.

If such a case be taken early, its cure is easy and certain; the dead tooth must be extracted, and the prominent molar shortened by means of the adjusting forceps and the guarded chisel, invented by Mr. T. W. Gowing, veterinary surgeon, of Camden Town. Then the sharp edges must be lowered by the tooth-file, and if these things appear to occupy time, it is better done at two or even three operations, than unduly prolong the agony of a sick animal. This being accomplished, all is not ended; the horse's mouth must, from time to time, be again and again operated upon; nor will the creature offer much opposition to the proceeding, if only proper gentleness be observed.

Aged horses, from the contraction of the lower jaw, (which change is natural to increase of years in the equine race,) frequently have their upper molars ground to a knife-like sharpness. They wound the inside of the cheeks, cause a disinclination to eat, and provoke a dribbling of saliva. The cure is the tooth-file, which should be applied until the

natural level is attained. This should be followed by the frequent use of the wash recommended for *aphtha*, or by the chloride of zinc lotion.

It may probably provoke a laugh among gentlemen and horsemen to read of toothache in the horse. Few, very few grooms may have witnessed or have noticed such a disease, but the fact exists; it is, indeed, a cruel reality to the animal which experiences it. The ignorance of stable men can establish nothing, for they are, as a class, equally presumptuous and ignorant; they have seen the horse for years, and yet are acquainted with neither the natural ailments nor the proper treatment of the animal. The toothache is to the creature a most agonizing disorder. We have only to look at the healthy horse, to observe how exquisitely it is clothed, how finely it is framed, to imagine how sensitive must be the body. The horse seems capable of a fear the most cowardly of mankind never conceived. So its face, though not made for expression, can denote an anguish which the human mind fortunately has no capacity to picture. The eye is often painful in its speaking. It embodies a desperation, a weariness of the world, and a prayer for death, such as few people comprehend; or the cry would rise, from the length and breadth of the land, demanding, as with one voice, the more Christian treatment of man's fellow-creature.

SCALD MOUTH.

This is an accident which occasionally occurs where grooms are too ignorant, or too thoughtless to read the direction labeled upon every bottle sent into the stable. Potent fluids are sometimes transmitted pure, in small bottles, though the custom is highly reprehensible; nor is the practice bettered because the label orders the contents to be mixed with water before the medicine is administered to the horse. Grooms are generally careless, and proverbially in a hurry; one of them enters the stable to give the drench, sees the bottle, seizes it in haste, calls the helper nearest the stable door, and, with such assistance, pours the liquid fire down the animal's throat.

The mouth is by the potent drug deprived of its lining membrane, and the stomach is lastingly injured; even if the dose be too small to occasion death, the interior of the mouth is rendered raw. Fortunate is the man who can be certain the evil there begins and extends no farther; but who can calculate the effect upon delicate, internal organs? The mouth may be healed, but who can ascertain the state of the deeper injury? Animals are treated as though their sensibilities were not affected by any medium pain; something must be visible before the groom sanctions the right in his charge to be restless. All signs and motions

denoting a gnawing agony, but not expressive of overpowering anguish, are visited with chastisement.

The groom is not entirely to blame. The fault resides with his superiors, whom the servant apes. The sin rests with those who (unable to keep a stud-groom) think their duty is discharged by a daily scamper through the stable before they go to business; with those who by their manners corrupt the groom's simplicity, while by a strange costume they induce the ignorant fellow to regard the badge of his disgrace as the upholder of his pride. To the upper classes, the shortcomings of stable men cling; with the superiors, whose example should instruct, rests the real blame of the servant. With educated men abide the errors of the ignorant.

After a scalding drench, an unusual redness declares the state of the mouth; a quantity of saliva flows from the restless lips, which are constantly in motion; they are being moved perpetually up and down, and are always parting with a smack. The food, for a time, is rejected, but good gruel, if cold, is generally taken freely. Boiled roots should constitute the nourishment for two months afterward, the mouth being all the while washed with the application recommended for aphtha.

SCALD MOUTH.

No immediate danger is to be apprehended from scald mouth. The stomach is more disposed to assume chronic than acute disease. Probably the temporary services of the animal might well be dispensed with, and much might be gained by an extra months' continuance of the prepared food. At all events, the experiment would be intended to ward off a possible evil; and, if we are to believe at all the motive, being based on goodness, the act would not be without its reward.

CHAPTER IV.

THE NOSTRILS—THEIR ACCIDENTS AND THEIR DISEASES.

COLD.

It should not excite surprise if the horse, though generally strong, and exposed to every abuse, is occasionally subject to the disease which, in man, is almost the property of the delicately nurtured. The

SELLING "A CAPTAIN," AS ANY HORSE WITH A NASAL DISCHARGE IS CALLED BY THE LOW DEALERS.

animal exists in a stable commonly kept at a high temperature by means of contaminated air; it is taken thence into a wintry atmosphere to stand for an uncertain period before the master's door. There it has to remain inactive, shivering in the blast, until it suits the proprietor's convenience to come forth; next, it is pushed along till the perspiration bedews the sides. Then it has to remain, generally unprotected, in the cold until some business is transacted, when it is flurried home again, and often has to wait afterward till it suits the groom's leisure to dry the reeking frame.

Can it create astonishment if an animal so treated exhibit that nasal affection denominated "cold?" The case is similar with hunters. They leave hot stables to join the distant meet. Game may be soon started,

or "the find" may occupy hours; at last, men, horses, and hounds scamper off; the fences are cleared; the fields, though they be swampy or plowed, are crossed at the longest stride. The pace is killing while it lasts; at length, comes a check. That saves many a steed, whose breathing ability was well nigh exhausted; but every animal has to shiver till the "view holloa!" again summons the assembly to motion.

How often does my lady's "carriage stop the way?" And how long have the horses to stand in the rain before it does go? How frequently does the gig or brougham linger near the curb, while another glass to good fellowship is drained? Then, we have to reflect upon the breathing forms harnessed to hired carriages; how the street cab rests in storms! How, day or night, the horses must be exposed to all the varied seasons! Unsheltered from the sun; with no protection from the frost! Let the reader reflect upon this and say, not if it be wonderful that a few horses exhibit the affection denominated cold; but whether it is not a legitimate matter for surprise every second horse is not thus affected?

A HORSE'S HEAD, EXHIBITING A COLD.

A mild cold, with care, is readily alleviated. A few mashes, a little green meat, an extra rug and a day or two of rest, commonly end the business. When the attack is more severe, the horse is dull; the coat is rough; the body is of unequal temperatures, hot in parts, in places icy cold. The membrane of the nose at first is dry and pale or leaden colored; the facial sinuses are clogged; the head aches; the appetite has fled; often tears trickle from the eyes, simple ophthalmia being no rare accompaniment to severe cold; till at length a copious defluxion falls from the nostrils without immediately improving the general appearance of the animal.

The treatment is plain. When mucous membrane is involved, all depletion must be avoided; the invalid should be comfortably and warmly housed; should have an ample bed, and the body should be plentifully clothed. Then a hair bag, half as long and half as wide again as the ordinary nose-bag, should be buckled by a broad strap on to the sick horse's head; into the bag should be previously inserted one gallon of yellow deal saw-dust; upon the saw-dust, through an opening guarded with a flap upon the side of the bag, should be emptied a kettle of boiling water, the superfluity of which may run or drain through the hair composing the bag.

The boiling water ought to be renewed every twenty minutes, as the

bag should be retained upon the head for an hour each time. Should not yellow deal saw-dust be obtainable, procure some of common deal, upon which last pour one ounce of spirits of turpentine. Mix well and thoroughly before you apply the bag to the head; but should not a proper apparatus be in the stable, then it is better to forego the steaming, as the common nose-bag is far too short and too tight for safety. The cloth moreover is apt to swell and not to allow the free passage of the water. Sad accidents have ensued upon the incautious employment of the ordinary nose-bag for steaming purposes.

STEAMING THE NOSE OF A HORSE WITH COLD.

If the horse appear to be weak, and there is the slightest suspicion that the weight of the appliance for the time directed may tax the strength, let some substance, as a stool, a form or chair, be placed beneath the bag. The animal will require no teaching to understand the use of the intended resting-place. As the weight begins to drag, the head will be lowered, and after a very brief space the steaming apparatus will be found reposing upon its intended support.

While the membrane is dry, use the steaming-bag six times daily. When a copious stream of pus flows from the nose, its application thrice daily will be sufficient. At the same time let the food consist of grass with mashes, to regulate the bowels and subdue the attendant fever. Give no medicine; but the discharge being established, three daily feeds of crushed and scalded oats, with a few broken beans added to them, will do no harm. Likewise, should the weakness be great, a couple of pots of stout, one pot at night and the other at morning, will be beneficial. Good nursing, a loose box, fresh air, warmth, and not even exercise till the disorder abates, are also to be commended. Afterward take to full work with caution, as much debility is apt to ensue upon severe cold. It will also sometimes lead to other diseases, as those of the larynx, air-passages, and lungs. Should the symptoms deepen, the treatment must be changed; the lesser affection (**cold**) being swallowed up by the greater disorder, which is superadded; consequently, disregard the original ailment, taking those measures requisite to relieve the new and more important affliction.

Animals with **chronic cold,** or with a constant running from the nose, soon exhibit excessive weakness. Nothing taxes the strength so much as the prolonged disorder of any mucous surface.

All that ignorant people know of glanders is, that the disease is accompanied with a nasal defluxion. The more cunning in horse flesh, likewise, are aware that glanders causes the lymphatic gland within the jaw to swell, or that a glandered horse is always, as such people assert, jugged.

HEAD OF A HORSE WITH "A JUG," OR WITH ONE OF THE LYMPHATIC GLANDS OF THE THROAT SWOLLEN.

1. The enlarged lymphatic within the jaw.

Now, both the discharge and the enlargement are generally present during inveterate cold. Animals of this kind are sold to the unwary as sound horses. The vendors believe the quadruped to be glandered, or to be affected with the most terrible of equine diseases; and the purchaser wants knowledge to perceive the contrary.

Let, therefore, no man who buys "a captain," (which is the slang for a horse with nasal discharge,) become alarmed, and to some member of the gang from whom it was bought, resell his bargain for a few shillings. Large sums are often made by thus disposing of a diseased animal for a high price; then, directly afterward, frightening the purchaser with a view to buying back at a cheap rate the supposed glandered horse. Always take the animal to the nearest veterinary surgeon. Have the quadruped examined; and, if really glandered, order it to be immediately destroyed. Listen to no offer; but have the order obeyed.

A gentleman once attending a sale, bought for a large price a fine black horse. No sooner had the money been paid, than a man came up and informed the purchaser of the real character of his recent acquisition, offering to take the bargain off the new owner's hands for fewer shillings than pounds had just been given. The proposal was indignantly refused. Others came, but all encountered the same answer. The terms were gradually heightened, till double the money expended was tendered. The horse, however, was destroyed; thus a gang of swindlers were deprived of a property which, they owned, had for the last year earned them an easy thousand pounds.

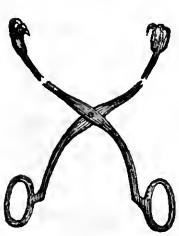
Every man, however, must not anticipate so favorable a proposal. The animals mostly are worthless, and would only be rebought for a very trifle; the swindlers, generally, being perfectly indifferent whether their eyes ever again behold a creature which can be easily replaced.

NASAL POLYPUS.

A polypus, when not otherwise distinguished, represents a pear-shaped body, which has little sensation, but great vascularity. It is not malignant, and its growth is generally rapid. By the increase of its weight, the polypus ultimately hangs from the spot where it grew, and becomes pendant by a sort of stalk, formed principally by the blood-vessels enveloped in the membrane which coats the tumor. Such growths are peculiar to mucous tissues, or to all the cavities of the body which communicate with the external air. With regard to the horse, polypus is mostly met with in the nostrils.

A POLYPUS.

It is a disputed point how these growths are occasioned. However, no compliment is paid to the veterinary science, when it is asserted that, even to this day, no recognized plan of treatment for polypus has been laid down. Such tumors are allowed to be removed with the knife, by ligature, by traction, and by tortion; in short, as you please. The first has generally been employed after a most butcherly fashion, slicing a piece off one day, and taking a morsel the next, till by slow degrees the whole was extirpated. So barbarous an operation is only worthy of ancient farriery; the blood lost must be enormous, and the subsequent weakness of the animal must more than counterbalance any benefit which the operation could have promised. Mr. Varnell, assistant professor at the Royal Veterinary College, lately removed a growth of this kind in a much more surgical fashion. That gentleman had a knife made with an angular blade; by employing this instrument, he was enabled to excise the tumor with a single cut, inflicting little pain, but affording immediate and lasting benefit to the creature. Where it can be employed, Mr. Varnell's angular knife is to be recommended, as the quickest and most efficient means of eradication which the public possess.



POLYPUS FORCEPS OR SCISSORS.

Tortion is more repulsive in appearance than in reality. A pair of scissors having sharp curved claws, at the expanded ends of blunt blades, are employed. The tumor is seized by the claws, a little pressure is made, and, at the same time, the scissors are drawn slightly forward. By that means the points are driven into the substance, and a firm hold is obtained. The handles of the scissors are next fastened together with wire, or not, at the pleasure of the operator. The scissors are afterward made to revolve several times, and with each revolution

they oblige the polypus to turn upon its pedicle, which motion first twists and ultimately ruptures it. The growth is thus removed; as the polypus is not very sensitive, and the operation should be soon over, small suffering is inflicted, when compared with the permanent ease which the proceeding insures.

Of the operation by traction or dragging away, no notice will be taken; it is a vulgar and a cruel affair. Ligature, however, where it can be used, is generally preferred; because the employment of it is not so sudden, and, consequently, not apparently so violent; because no blood generally follows the removal, and therefore there is no visible evidence of pain. The writer is not certain it is the least painful of the methods proposed; the relief is delayed, although the appearance and the appetite of the animal are assurances that nothing approaching to agony is inflicted.

For ligature procure a fine, hollow tube, having at one end a cover made to screw on and off; the opposite extremity must be open, and should have a cross bar attached externally, one inch from the termination. Upon the cover two holes must be bored, each large enough to admit a fine wire; to arm this instrument, which should be about eighteen inches long, procure a piece of zinc wire one yard and a half long; push this through one of the holes on the unscrewed cover and down the tube; screw on the cover; fasten the projecting end of the wire to the cross bar; return the wire through the other hole, and, passing it down the tube, leave it hanging free. Form of the wire a loop, large enough to surround the polypus; pass it gently over the head of the growth; by means of the tube, work the loop upward, tightening the wire as the size of the polypus diminishes. When the wire is round the pedicle, fix it by winding it also over the cross bar; then slowly make turns with the tube, observing the growth while so doing. When the tumor changes color or the animal exhibits pain, discontinue all further movements; release the wires from the cross bar and withdraw the tube, leaving the ends of the ligature protruding from the nostril and turned up on one side of the face.

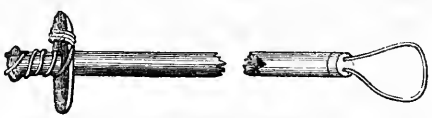


DIAGRAM OF A TUBE FOR THE REMOVAL OF NASAL POLYPUS.

Order the horse to be fastened to the pillar-reins that night, and to be watched while feeding. The next day, if the tumor do not feel sensibly cold and has not evidently lost the living hue, reinsert the wires into the tube, fix them again on the cross bar, and give another turn or two. If small alteration be subsequently observed, the same evening the pro-

ceeding may be repeated; but, when death appears confirmed in the tumor, twist the tube till the pedicle gives way.

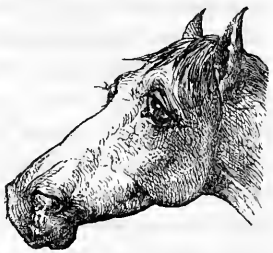
The advantages possessed by this invention is, firstly, the ability of twisting a ligature tight when the growth is partly removed from view. Also, in the adoption of wire which will retain the form it is placed in, and remain unaffected by the moisture natural to the nostrils. Moreover, the tube can be made without the screwing head-piece, and answers quite as well, or even better, when solid. If made without the screwing head-piece, it can assume a flattened form, and it is somewhat easier to introduce; but the wire, in that case, must have both ends pushed through the holes down the tube.

The **bleeding polypus** is not met with in the horse. For that polypus which sprouts from the nasal membrane and extends to the fauces, impeding respiration and deglutition, appearing like a disease of the structure, to which it is attached by a broad base, nothing can be done. It grows fast, and in a short time renders longer life a larger misery.

The polypus which admits of removal is a smooth, moist, glistening and vascular body. It greatly impedes the breathing. These growths have been known to push out the cartilaginous division of the nostrils until the once free passage was all but obliterated. They provoke a constant discharge of pure mucus, and, on that account, the horse, thus affected, has been condemned as glandered. However, the truth may be at once recognized by closing the nostrils alternately. It is then easy to discover which cavity is affected, as a resistance is provoked by stopping the free channel, which bears no resemblance to glanders. To bring down the polypus, cough the horse, by making gentle pressure upon the topmost part of the windpipe; for, during the stages of glanders, any appearance at all resembling polypus is never present. It was usual, the instant the growth was visible, to transfer it with a tenaculum. This, however, like other barbarities, only did harm. The substance of a polypus is easily rent, and it bleeds freely. The bleeding concealed much, which, after proceedings rendered necessary, should be plainly seen. It is better, when sufficient room is not left for operation or inspection, to proceed with greater boldness, so as to ascertain the advantages likely to result from further measures. Then throw the horse, and with a probe-pointed, straight bistoury, slit up the nostril upon the outer side. That done, release the animal till all bleeding has ceased, when the endeavors may be renewed with a better prospect of success. Afterward, close the incision with a double

A TENACULUM.

set of sutures, (one set to the true nostril and another for the false nostril.) Apply to the wound the chloride of zinc wash, and in a short time all will be healed.



NASAL POLYPUS.

Nasal polypus, nevertheless, is an affection often requiring the performance of tracheotomy, before any examination can be attempted. For this necessity, the operator must be prepared; but, as tracheotomy is required only to relieve the breathing during examination, the temporary tube invented by Mr. Gowing is, in that instance, decidedly to be recommended.

NASAL GLEET.

This terrible affliction is suppuration of the mucous membrane, lining the facial sinuses. It rarely occurs in the stable; but when it does, the cause mostly is to be traced to the projection of some molar tooth, and the disease is then generally hopeless. The pressure of the tooth has provoked irritation of the bone. The sinuses are no longer hollow spaces, but have been converted into cavities crowded with bony network. To cleanse them in that condition is impossible, and death is the only resort left to a humane proprietor.

Horses, when allowed a run at grass, are often taken up with the bones of the face swollen and soft. Percussion draws forth the same response as would be elicited by rapping upon a pumpkin. The animal, suddenly released from toil, has been playing in the field with its new associates. The simple creature could not comprehend the feet were fettered. The equine race always display joy with their heels, and the hoof, which unshod might lightly touch the neighbor's skull and no injury result, being armed with iron carries additional weight with the blow, and leaves behind a deadly bruise upon the facial bones. The following engraving, representing an extreme case of this kind, is a warning never to turn your animal into a field where others are grazing; but if you are obliged to starve a horse on grass, at all events choose a spot where it can be alone.

NASAL GLEET.

Besides the distortion, the next prominent symptom attending nasal gleet is fetor. Discharge is not always present. It is irregular in its appearance, but can generally be made to flow, by a brisk trot or by some tempting food

being placed upon the ground. Stench and discharge, often coming only from one nostril, but occasionally from two, are likewise symptomatic of the same disorder.

Pus is, naturally, the blandest secretion of the body; but being confined, it corrupts, and then smells abominably. The blow, which started up the secretion, injured the bones forming facial sinuses. Those cavities open to the nostril on either side by two comparatively small flaps, slits, or valves. These are their only means of communication with the external atmosphere; and through these valves all the pus must flow. Is it surprising if such structures occasionally become clogged, till the accumulated secretion, or the increased breathing, or the position of the head, obliges the passage to give way?

The chances likely to result upon treatment are about equal, but the process is generally slow. The trephine has to be employed upon the facial sinus, and circular portions of bone have to be removed. Into the openings thus made is to be injected, by means of a pint pewter syringe, half a gallon of tepid water, or water heated to ninety-six degrees, in which half a drachm of chloride of zinc is dissolved. The chloride of zinc not only destroys the fetor, but also disposes the membrane to take on a new action.

The injection, however, only cleanses the sinuses, and the nose also becomes involved by the disease. It is usual to describe the turbinated bones, or the fragile bones situated within the nostrils, as thin osseous

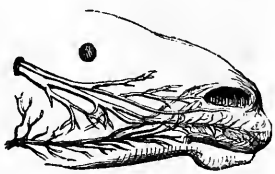
THE TREPHINE, BY MEANS OF WHICH A CIRCULAR PIECE OF BONE MAY BE REMOVED.

INJECTING THE HEAD OF A HORSE FOR NASAL GLEET. Copied from a work by La Fosse.

structures, making numerous convolutions upon themselves. They favor such an opinion when viewed *in situ;* but, being removed, are found to consist of ample sacs or bags, which the external layer concealed from view. These hidden spaces soon fill with pus; here it remains; the

position of the head even cannot entirely dislodge it, as the head is seldom carried perpendicularly. Here the pus hardens or concretes, until by degrees the cavities are filled with a foul and solid matter.

THE TURBINATED BONE WITHIN THE NOSTRIL OF A HORSE AFFECTED WITH NASAL GLEET; PARTLY ABSORBED BY PRESSURE AND PARTLY DISTENDED BY AN ACCUMULATION OF CONCRETE PUS.



PART OF A HORSE'S HEAD WHICH HAS THE BONE TREPHINED SO AS TO ENABLE THE SURGEON TO EMPTY THE TURBINATED BONE. THE COURSE OF THE NERVES IS SHOWN.

Such a store-house of disease may thus be opened and cleansed. Mark with chalk or charcoal the spot in a line with the infra-orbital foramen, and a little anterior to the third molar tooth; the positions of both may be clearly ascertained by feeling externally upon the head of the living horse. At that place cut through the skin, but no deeper. Make a T incision, only reverse the letter ⊥. Withdraw the two flaps of skin; remove by means of blunt hooks any structures that conceal the bone, upon which last, when clear, employ the trephine.

The side of the face being opened, insert through the opening a steel probe. Thrust it through the concrete pus, and strive to discover the most depending portion of the sac. To this spot, if possible, apply a hollow metallic tube, about twelve inches long. This instrument has a horn-shaped mouth at the blunt extremity, and a fine sharp steel saw at the other. The saw being fixed upon the spot indicated by the probe, and a few revolutions being given to the horn-shaped end, between the

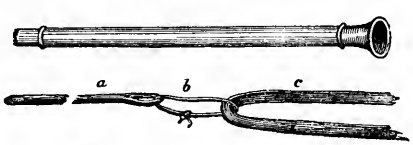


FIG. 2.

Fig. 1. The hollow metallic tube, having at one extremity a horn-shaped mouth for the convenience of inserting a gum-elastic probe, and at the other end a fine saw for cutting through the turbinated bone.
Fig. 2. *a.* A gum-elastic probe to be threaded through the metallic tube, and so forced out of the nostril. *b.* A portion of string passed through the eye of the probe and forming a loop. c. The tape which constitutes the seton passed through the looped string.

palms of the hands, a circular portion of the bony net-work which characterizes the turbinated structures is removed.

Now, so soon as this is accomplished, force through the hollow instru-

ment last employed an elastic probe armed with a piece of linen tape. The probe, being about eighteen inches long, will, by the application of very gentle force, soon glide through the opening last made, and out of the nostril. The tape is, by traction, made to follow, and the ends being tied, a seton is established. By the daily movement of this last contrivance, the concrete matter may effectually be displaced.

This being finished, the syringe is to be daily employed; and the cure may be often expedited by the following ball, which should be given once every twenty-four hours:—

Balsam of copaiba	Half an ounce.
Cantharides (in powder)	Four grains.
Cubebs	A sufficiency.—*Mix.*

Should this appear to affect the urinary system, immediately discontinue it. In its place, half a drachm of belladonna should be rubbed down in one ounce of water, and administered every hour, till all appetite is destroyed, and the drug should be discontinued after this effect is gained. The belladonna, however, should be exhibited only every fourth day.

The lymphatic glands under the horse's jaw occasionally enlarge; but as the affection is destroyed the swelling will disappear. However, the cure may be expedited by commodious lodging and liberal food. It evidently is folly to stint the provender and expect a starved nature to vanquish disease.

HIGHBLOWING AND WHEEZING.

These peculiarities admit of no pictorial illustration. Obviously, it is impossible to picture a sound. Both affections are known by the noises to which they give rise.

Highblowing is complained of only in saddle horses. It consists of forcing the respiration violently through the nostrils, whereby a bur-r-r-r-ing kind of noise is made. This sound children are fond of imitating, when they play "horses;" but in the animal it is unpleasant to the equestrian, because by it the nostrils are cleared, and the trousers of the rider are often soiled. Besides, fashion at present favors a quiet steed. For this habit there is no remedy, except throwing up the horse for harness purposes, in which employment the habit is not generally regarded as objectionable.

Wheezing is a thin, whistling noise, heard only during inspiration. It is provoked by some impediment to the breathing, and the cause always resides in the nasal chambers. It is astonishing how small an obstacle engenders this affection. This, like the former peculiarity, is equally incurable. It is easy to stop each nostril, and thus to tell from which

the noise proceeds; yet, for its removal, the affection demands a purely experimental destruction of parts, so ample, that even veterinary science shrinks from the attempt.

However, to such chances the life of a horse is exposed. The indulgence of a habit which adds to the animal's beauty in the eyes of the foot passenger, is regarded as objectionable in one position, while it is admired in another situation; the advent of the smallest excrescence in a large cavity can deteriorate the value of a life. A loss of value entails loss of caste. The life descends to harder work and lessened care. The first step taken, the others rapidly succeed; for it cannot be asserted that, as a general rule, the lower classes appear to advantage, when the custody of a beautiful animal is morally considered.

CHAPTER V.

THE THROAT—ITS ACCIDENTS AND ITS DISEASES.

SORE THROAT.

THERE is, among horse owners, much dispute as to the proper mode of harnessing a horse. Gentility has no feeling either for itself or with any of the many lives by which it is surrounded; this vice of modern time delights in labored imposture, and is always best pleased when it

WITH AND WITHOUT THE BEARING-REIN.

is mistaken for something that it is not. Gentility favors the use of a bearing-rein in the horse's harness. The object is to keep up the head, and to give to an animal with a ewe neck the aspect of one having a lofty crest. The artifice is very transparent; it should deceive nobody save him who is foolish enough to adopt it; but it deprives the poor horse of no little of its natural power. Gentlemen's coachmen complain of the work when their horses are driven ten miles daily, although the distance may be repeatedly broken by visits and by shopping. The cabs of London can only employ the horses which gentlemen have discarded; with these last vehicles, however, no bearing-reins are adopted. The cast-off animal that previously fagged over ten miles, when reduced to the rank, has to pull loads which no genteel carriage would carry, and

to travel a sufficient distance to pay horse, driver, conveyance, and proprietor. In the possibility of such a contrast is, perhaps, best exemplified the cruelty of the bearing-rein.

When the fine structure of the horse's body is regarded, and we reflect that a creature of so beautiful a frame is by man's will taken from the fields, where every bite of grass is of a different flavor—now hot and pungent by an admixture of the buttercup, then cool and bland by the marsh-mallow mingling with the morsel—where, unknown as yet to toil, such sustenance is sufficient for growth and idleness; when we consider that an animal is suddenly snatched from such a diet, every mouthful of which was endowed not only with a varied taste, but with a change of perfume; when we feebly conjecture how grateful this ever-varying savor must have rendered herbage to any being possessed of the admirable sense of smell with which the equine species are gifted, it can create but small surprise that, when taken into stables, put to exhaustiug labor, and day after day made to eat a stinted allowance of dry food, the sameness of the diet and the change in habit should occasionally derange the digestion. **Sore throat** is, however, frequently a sign of some graver disorder; the affection should, therefore, be cautiously treated as a local malady.

When it is present, the symptoms are a constant deglutition of saliva, a want of appetite, accompanied by an inability to swallow liquids. The pail being presented, the act of drinking is accomplished with evident effort; the drops are forced down by a series of jerks, which are often made more emphatic by an audible accompaniment. Notwithstanding this labor, only a portion of the fluid enters the gullet, the greater part returning by the nostrils.

A HORSE WITH SORE THROAT ENDEAVORING TO DRINK.

So soon as this is observed, throw the horse up, for sore throat is always attended with weakness. Clothe fully, bandage the legs, place in a well-ventilated and amply littered loose box; feed upon green meat for a couple of days, at the same time always having present a pail of thick, well-made gruel, which should be regularly changed, thrice daily. Morning, noon, and night, a pottle of bruised oats, with a handful of old beans

distributed among them, should be scalded, and, when blood-warm, placed in the manger.

Frequently, this is all that is required, and the disorder is well cured, which yields without medicine. Should the bowels prove obstinate, and after the second day continue constipated, a mild dose of solution of aloes should be administered.

Solution of aloes	Four ounces.
Essence of aniseseed	Half an ounce.
Water	One pint.

Mix, and give.

This, with the diet previously recommended, is rarely required, as the food alone, so far as the author's experience can justify an opinion, never fails in relaxing the body. However, should the sore throat remain, dissolve half an ounce of extract of belladonna in one gallon of water. Hold up the head of the animal and put half a pint of this liquid into the mouth; allow the fluid to be retained for thirty seconds, then take away the support, and the medicine will run from the lips. Repeat this frequently, or from six to eight times during the day.

If the soreness of the throat should appear indisposed to heal, but, on the contrary, should seem inclined to spread, lose no time in resorting to the next preparation. Permanganate of potash, (prepared by Squires, chemist, of Oxford Street,) half a pint; distilled water, one gallon; half a pint to be used to cleanse the horse's mouth, in the manner just directed for diluted belladonna, six times daily, or—

Chloride of zinc	Three drachms.
Extract of belladonna	Half an ounce.
Tincture of capsicums	Two drachms.
Water	One gallon.

Mix, and use as directed for the previous recipe.

Occasionally the disease does not spread, but, spite of our best endeavors, it will remain stationary. Then try the brewers' stout. Give one quart morning and evening. However, see that the animal has the beer, for men are partial to that fluid, even more than horses. Should no change be remarked in forty-eight hours, blister the throat. Do this with one part of powdered cantharides soaked for a month in seven parts of olive oil, adding to the whole one part by weight of camphor. Rub this oil, when filtered through blotting paper, into the throat for ten minutes in summer, and a quarter of an hour in winter.

All the endeavors may be useless. Then cast the horse. Have ready some nitrate of silver, dissolved in distilled water—five grains of the active salt to one ounce of the fluid. Saturate in the solution a sponge four inches wide, tied on to the end of a stick eighteen inches long. Have the sponge made as dry as possible without squeezing it. Put a

balling iron into the mouth. Insert the sponge through the iron, and having pushed it down to the back of the tongue, rapidly press it against the side of the cavity. Be prepared for what you are about to do, and do it quickly. The operation stops the breathing, and calls forth the resistance which is natural to impending suffocation.

The horse being released, give the following ball. in addition to the stout, twice each day:—

Powdered oak bark and treacle, a sufficiency of each to form a mass.

If none of these measures are successful, the sore throat must be the symptom only of some greater disorder, and all local remedies, in that case, must be ingulfed in the general treatment. However, it is not every measure which will cure every sore throat. In young horses, when first taken from the pure air into the contaminated atmosphere of most stables, such affections are common; but in old animals they are generally most severe. It is a usual plan to turn a horse out to grass when afflicted with obstinate sore throat: this is cruel. The animal, whose labor we enjoyed during its health, has a positive claim on us for kindness and for care when overtaken by disease. Moreover, those who laugh at the above may become serious, when they are informed that animals turned to grass for sore throat are not unfrequently taken up virulently glandered. So closely are moral duty and self-interest associated, when the operation of both is rightly considered.

COUGH.

Cough is too often caused by unhealthy lodging. Few stables are perfectly drained and ventilated; the very great majority are close with impurity. No surprise, then, need be exhibited, if the entrance to the air-passages should display disease, when an animal, so naturally cleanly, is imprisoned in the space man is too thoughtless to keep uncontaminated.

The larynx is the seat of cough, when the affection exists by itself, although the annoyance is often a symptom of some other derangement, and may then spring from laryngeal sympathy with some comparatively remote organ. It may arise from a very trivial cause, as teething; or it may be a sign attendant on the worst of disorders, as farcy and glanders. Broken wind, roaring, laryngitis, bronchitis, chronic diseases of the lungs, stomach, bowels, worms, etc. etc., all are attended by cough, which is more frequently present as a symptom than as a disease. Hot stables, coarse and dusty provender, rank bedding, and irregular work, are the general provocatives of cough, as a distinct affection.

The name is evidently derived from the noise which constitutes the chief symptom of the disorder. Cough consists in spasm of all the

muscles of expiration. The air is violently expelled, and an explosive sound is the consequence. During this spasm, the soft palate is raised, and the breath is allowed to pass through the mouth as well as through the nostrils. The horse, as a rule, being able only to respire through the nostrils.

The characteristic noise is generally annoying to the master. Warmth, however, is popularly esteemed the cure for cold. The horse proprietor, therefore, thrusts his animal into an abode heated by impurity, only to find the annoyance aggravated. This fact is soon explained. Stables are not heated by fire or by water; their warmth is entirely derived from the fermentation of excrement. Were they well ventilated, efficiently built and cleanly kept, these places, having no artificial heat, must be cold; but the owner loves warmth; it feels so comfortable; it is so nice! He does not inquire if it is derived from the right source; he

THE ACT OF COUGHING.

hates the bother of investigating. Nothing can be proper if you are to consult medical men! They talk and discuss, but no good comes of their verbosity! And by such sayings, the horse proprietor blinds his judgment, permitting to continue the evil which ignorance institutes. **Chronic cough** cannot, when thus treated, amend. It continues till the membrane covering the larynx be thickened and morbidly sensitive; then the cough is an appendage to the life, and roaring is its companion.

For the cure of chronic cough, scald and crush the oats, damp the hay, and give thin gruel or linseed tea for drink. At the same time see that the air is pure: the human nose is a sufficiently good test of atmosphere—that of the stable should not smell of horses, or of any taint whatever. If the ventilation is good, the drainage clear, and the bedding clean, the interior of a stable should be as odorless as any lady's apartment.

Cough, or the noise which accompanies stages of different disorders, will be described as the various affections of which it is a symptom are passed before the reader. Chronic cough, or the sound that follows a draught of cold water, and is heard when the horse quits the stable for the open air, is most distressing. It is a constant accompaniment during the commencement of a journey, and requires that the food and lodging should be looked to. Clothe warmly, and give half a pint of the following, in a tumbler of cold water, thrice daily:—

Extract of belladonna (rubbed down in a pint of cold water)	One drachm.
Tincture of squills	Ten ounces.
Tincture of ipecacuanha	Eight ounces.

Mix.

If no beneficial change be witnessed, try the subjoined:—

Barbadoes tar (or common tar if none other be at hand)	Half an ounce.
Calomel	Five grains.
Linseed meal	A sufficiency.

Mix, and give as one ball, night and morning.

Should no improvement result, the next may be substituted:—

Powdered aloes	One drachm.
Balsam of copaiba	Three drachms.
Cantharides	Three grains.
Common mass	A sufficiency.

Mix, and give first thing in the morning.

A bundle of cut grass, every day, has done much good in the spring; so, also, has a lump of rock salt placed in the manger, during any season of the year. The horse, however, should be observed. If it eat the litter, no straw, during the daytime, should cover the stall; and, at night, a muzzle should be fixed upon the animal. The cough must be more than of a simple character which does not vanish before the proposed measures are exhausted. Cut roots, also, are beneficial during this disease. The hay should not be abundant, and should always be moistened. But, above all things, attend to the drainage and ventilation of the stable.

LARYNGITIS.

The common cause of this disorder is foul stables. When we see the animal associated with the nobleman in his pride, and linked as the willing slave of the merchant for his profit, it does seem strange that a creature, thus connected, should be subject to disease from scant and tainted lodging. When we consider the subject from another point of view, and

regard the eautiful frame-work, animated by the affectionate disposition of the horse, it sounds more than cruel, to say the most valuable and amiable assistant man has on earth dies neglected in age, and, during the vigor of its prime, encounters disease from the niggard provision made for its welfare. The devotion of a life ought to entitle the laborer to breathing space, after the labor of the day has ended. But noblemen, professional men, merchants, tradesmen, mechanics, all sin in this respect alike. The horse, when not toiling, is pushed away into the narrowest possible limits. The prisoner is permitted only to breathe a limited quantity of the air which nature has supplied in so great abundance and in such purity. That quantity must, from the time of close confinement, be frequently respired during the night; and, when the air of the place has become hot and heavy, the quadruped, at the command of its attendant, quits its abode for the cold atmosphere without the walls.

The pure air which circulates about our globe is certainly much to be preferred to the close interior of the stable. Yet, to the larynx, in some measure accustomed to the last, a sudden draught of the first is the almost certain source of disease. It acts as a stimulant upon a part rendered delicate by abiding in a morbid medium. It operates violently upon a structure which had almost become familiarized with impurity. Inflammation is the result, and laryngitis is established.

The symptoms are broadly marked and prominently characterized. Dullness is present. There is a slight enlargement, which may be observed externally, and over the region of the larynx. The most distant attempt to handle the throat produces energetic resistance. The head is carried awkwardly, as though the neck were "stiff." A short cough is frequently to be heard almost at every inspiration. At the same time, there is often to be detected a hoarse sound, which becomes a sort of grunt, when the ear is placed against the trachea. The breath is hurried and catching; the pulse is full and throbbing; while the nasal membrane approaches to a scarlet hue.

THE STEAMING-BAG.
For a full description see p. 85.

The pulse requires the first attention. It must be rendered less frequent and more soft, by drachm doses of tincture of aconite root in wineglasses of water, which should be repeated every half hour. This is better than blood-letting, as laryngitis is to be most dreaded because of its tendency to assume the chronic

form. This tendency venesection favors; therefore, save under professional advice, refrain from bleeding.

After the pulse, the breathing next demands our care. Warmth and moisture are curative and pleasant to an inflamed surface. Procure the steaming-bag, and keep it almost constantly applied. The steaming-bag in laryngitis is of the first importance. A day's delay in its use may so aggravate the disorder as to oblige the resort to tracheotomy.

Should the steaming apparatus appear to distress the animal, it must be used only for a limited period, and be reapplied after its effect has subsided. To aid its operation, some soft hay must be obtained. Soak this in boiling water and fix it upon the throat, by means of an eight-tailed bandage, a representation of which is given below.

EIGHT-TAILED BANDAGE.

A piece of stout canvas or flannel, one yard and a quarter long, and nine inches wide, is procured. Three slits are to be made at either end; each should be a quarter of a yard deep. This is placed round the throat and the ends are tied, four in front of, and four behind, the ears.

So soon as the animal appears capable of enduring interference, the appended drink should be given thrice daily. While administering it, watch the horse with the utmost attention. If the slightest inclination to cough be exhibited, immediately lower the head, or the liquid may, during the spasm, be drawn down the windpipe. It is far better to lose much physic than to kill one animal. It will, generally, be more readily swallowed, if made blood warm: on no account should the twitch be used or the jaws be forced widely asunder. The neck of the bottle should be inserted into the corner of the mouth, and the quadruped should be permitted to use its discretion as to the time occupied before each gulp is swallowed.

Infusion of squills	Two ounces.
Infusion of ipecacuanha	Two ounces.
Infusion of aconite	Half an ounce.
Extract of belladonna	One drachm, rubbed down with a pint of warm water.

Mix, and give thrice daily.

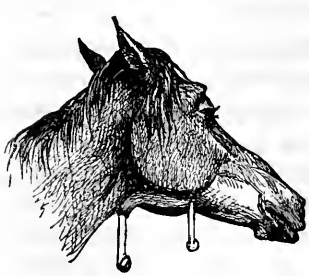
The lodging should be a cool, well-aired and thickly-littered loose box. The legs ought to be bandaged and the body fully clothed. The food, during the violence of the disorder, must consist only of well-made gruel. It may be untouched; but, nevertheless, it must be changed, thrice daily, for no one can tell when the appetite may return.

The signs of the disease becoming worse are, increased noise in the breathing; the respiration and pulse quicken; the cough is suppressed; the nasal membrane changes to a leaden hue; the standing becomes unsteady; the horse moves about; partial sweats break forth, etc.

The symptoms of improvement are, the membrane becoming paler, or more natural in color; the cough growing freer or louder; a white, thick discharge flowing from the nostrils; the breathing, also, is easier and less noisy; together with the general demonstrations of health.

Then a little moist and succulent food may be allowed, but nothing harsh or fibrous should be presented. When the amendment is confirmed, a seton, or, in other words, a piece of tape, may be put between the skin and flesh, in the place indicated by one of the next engravings.

The seton should be moved daily, and ought to be kept in so long only as is necessary for the secretion of healthy pus. That object being obtained, cut off one of the knots, and by pulling at the other, withdraw the agent. Some slight alteration is next made in the solidity or dryness of the food; and then the neck or throat is blistered, the size and extent of the blister being indicated in a subjoined illustration.



A SETON IN THE THROAT OF A HORSE.

A HORSE WITH THE THROAT BLISTERED.

The action of the vesicatory having subsided, the natural food may be returned to, only with certain cautions. The hay must be shaken out, to remove dust, and it should also be picked, to take away any harsh substances, pieces of stick, or thistle leaves. Then, the fodder being perfectly clean, should be sprinkled with water and allowed to remain soaking, at least six hours prior to its being placed before the animal. The oats, likewise, should be twice sifted and once examined thoroughly by the hand. Afterward, warm water ought to be freely poured upon them, and the grain be permitted to soak six hours before being put into the manger.

The popular opinion declares sore throat to be always present during laryngitis. That notion springs from the horse always quidding, or re-

jecting the pellet it has masticated, while suffering under an attack of the last-mentioned disease. The two disorders, however, are distinct; likewise the remedies for each are separate. The **quidding, during laryngitis,** springs from the act of deglutition, obliging the sore and inflamed larnyx to rise and press the pellet against the roof of the fauces. That act occasions much pain; hence the aversion to swallow solid substances. Sore throat is, however, by no means the necessary accompaniment of laryngitis. Neither are the bowels invariably confined during the disease. It has been known that the purgation existed in such energy as to require remedies. Consequently, no absolute plan of treatment can be laid down. However, depletion should be avoided to every extent which may be possible. The chronic form of the malady, consequent upon debility, is to be much dreaded. Effusion into the membrane, covering the rim of the larynx and its attendant roaring, is too frequently the result of that weakness which is produced by active measures. Among the lesser evils are cough, which not unfrequently proves but the precursor of more potent ills. Therefore, while laryngitis lasts, rather check the fever by gentle measures than resort to antimonials, niter, or the host of lowering agents.

A HORSE IN THE ACT OF QUIDDING.

So soon as the case is observed, change the stable: the horse will do far better in the open air than in the foul atmosphere which originated and must aggravate the disorder. Rain, snow, or frost are more wholesome than the polluted warmth man's most humble slave is too often doomed to inhale. The roofs of many stables are terribly low; in no building of this kind is the covering too high. The welfare of the horse seems always sacrified to the imaginary interests of its master. Thus, above the stable is built a loft for the hay and a residence for the groom. To save expense, the building is raised as small a distance from the ground as possible. The height of modern buildings would be by no means extravagant, were an entire stable of ordinary dimensions left free for a single quadruped to breathe in. A puerile parsimony, however, denies the huge lungs of the animal the only food life cannot do without, for even a short space. Disease and death consequently soon waste treble the money ample accommodation would not have consumed. Ignorance is the most expensive quality a proprietor of horse-flesh can indulge; for nature invariably refuses to be made subject to man's convenience.

ROARING.

A horse is said to roar when, during progression, he emits any unnatural sound. The noise is not exactly of the same intensity in any two animals. Some creatures roar so loud as to attract attention from the foot passengers; others have so trivial a defect in this particular, that it can only be detected after a breathing gallop. In all, however, it materially lessens the value.

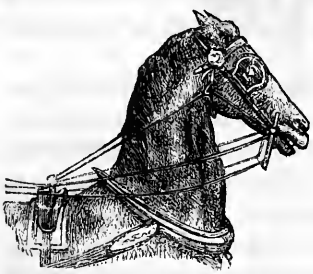
It is usual to cough horses suspected of being **roarers**; this, however, is wrong. The constant pinching of the larynx may induce the affection. The cough of a confirmed roarer, however, is peculiar. It consist of a double effort; a spasmodic expulsion of the air, followed by a deep and audible inspiration.

The best mode of detecting a roarer, where exercise is forbidden or impossible, is to get a stick and to quietly approach the suspected animal. Having reached the head, take a short hold of the halter, and all at once display the weapon, at the same time making a pretense as though about to use it violently upon the abdomen. The horse in alarm will run toward the manger, and, if a roarer, the action will be accompanied by an audible grunt. This proof, taken with the refusal to allow the horse to be tried, is generally conclusive; though by itself the test is by no means satisfactory. Many horses that are not roarers will sometimes grunt under the emotion of fear.

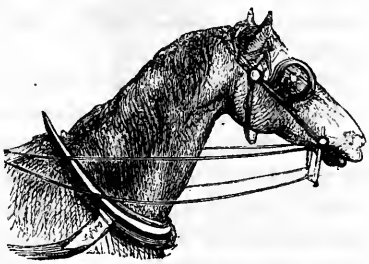
Of **roaring** there are two kinds, acute and chronic. **Acute roaring** is that which is merely symptomatic of a disease. It may be produced by the tumor of strangles compressing the larynx; by the impediment, in choking, being situated so high up as to interfere with the breathing; and by many other causes. In these cases remove the excitant, and the effect will immediately cease. Acute roaring is, therefore, a very trivial affair, excepting so far as it indicates the severity of the complaint, which generates the affection.

Chronic roaring is a very different business. This mostly results from the abuse to which a generous animal is subject, during the early period of its domestication. A carriage horse may be serviceable, and even dashing, when the twentieth year has passed; but the vast majority of these animals perish before maturity is reached. A handsome pair of Cleveland bays pull some fashionable lady round the park, before their bones are formed or the teeth perfected. The animals have also to take their mistress the circle of morning calls, and to be smartly stopped short at the door of every house she visits, while their sinews are still soft and yielding. They have to "go faster," when their mistress is in a hurry, and have to wait her pleasure when she is disposed to linger. They

have to do all this, while their bodies are distorted by the bearing-rein, the balance of their frames being violently made to conform to the capricious notions of modern fashion. For the illustration of this subject, an animal, with a head rather well put on, has been chosen. The engraving represents a horse undergoing the torture of the bearing-rein. The next illustration exhibits the horse carrying its head as it would, were it free to exercise a choice. The reader is not asked which delineation looks the best. Any appeal to his taste is forborne, because the generality of eyes are perverted by the dictates of custom.



A HORSE'S HEAD PULLED UP BY THE BEARING-REIN.



A HORSE'S HEAD WITHOUT THE BEARING-REIN.

But he is asked to inspect the representations. Let him look well and long at them; then declare which appears most at ease. Let his heart instruct his eyes, and, to its teaching, let him subject his liking; for there can be no beauty where constraint is perceptible. In the most vigorous of the ancient statuary repose may be absent, the muscles may be strained and the attitude violent; still all the parts balance. "Yes," it may be replied, "but in the Elgin marbles the horses' heads are thrown back." So they are; but not fixed back. The horses are ridden without bridles. The elevation of the head, therefore, denotes spirit, and represents no more than the action of a moment. The modern carriage horse, whether galloping, trotting, or standing still, always has the head in one attitude, save when the muzzle is thrown into the air to ease, for an instant, the pained angles of the mouth, inhumanly tugged at by the bearing-rein.

Which of the foregoing engravings looks most at ease? Does not the fashionable horse appear suffering constraint and torture? The face is disguised and concealed by the harness; but enough is left visible to suggest the agony compulsion inflicts. "Pride," says the proverb, "has no feeling." Therefore, no expectation is formed of any appeal to the fashionable circles; but by the ignorance of the public is this barbarity

licensed. Were the mass properly informed, the hooting of the populace would soon drive fashion into a more humane usage.

THE HEALTHY LARYNX.

1. The thyro-hyordeus muscle.
2. The crico-thyroideus muscle.
3. The arytenoideus muscle.
4. The crico-arytenoideus posticus muscle.

a. a. The thyroid bone.

A. The epiglottis (a cartilage.)
B. The arytenoid cartilages.
C. The thyroid cartilage.
D. The cricoid cartilage.

E. E. E. The commencement of the trachea.

THE EFFECT PRODUCED BY THE BEARING-REIN.

a. The healthy arytenoideus muscle.
b. The healthy crico-artenoideus posticus muscle.
A. The arytenoideus muscle paralyzed and partially absorbed by the constant use of the bearing-rein.
B. The crico-arytenoideus posticus muscle rendered pallid, and deprived of power by the use of the bearing rein.

The left engraving represents the larynx in a state of health. The larynx is the most sensitive organ in the body. If a crumb of bread, a particle of salt, or a drop of water "go the wrong way," or enter the larynx, everybody has felt the convulsive coughing that immediately ensues. Yet this larynx, so exquisitively sensitive, and so resentful of the lightest touch, is forced out of place and shape by the adoption of the bearing-rein. The whole weight of the head is made to press against the larynx; the action of the part is stopped; certain muscles are thrown out of use. Now, doom a part to constant rest, and paralysis soon results. This is exactly what follows the often long stoppage of that freedom which is necessary to the health of any structure. Certain of the muscles are absorbed; they lose their bulk and part with their color; their function is destroyed: the consequence is, the horse becomes a confirmed and an incurable roarer.

So fearful a result, as a life of anguish to any creature, might be thought sufficient to amend a triviality like the whim of fashion. Still, sad as that consequence is, it is not all which this folly engenders.

The larynx, sensitive and delicately constructed, is formed upon different pieces of cartilage. This substance is slowly organized and very yielding. The structures of the youthful horse's frame are not con-

firmed. All are soft, especially a substance naturally semi-elastic. The bearing-rein forces the head upon the neck; the larynx thereby is compressed. It assumes strange forms, when it is forced from its natural position. As maturity arrives, the various structures harden. Then distortion of the larynx becomes fixed. This organ has been taken from the bodies of old animals, of the shape here depicted. The morbid specimen, from which the following was copied, is, unfortunately, too common, as the late Professor Sewell clearly demonstrated. But, what a price is this to pay for fashion—to sit for hours behind a noble creature, whose exertions are adding to our pleasure, and at the same time to be entailing deformity upon the animal! Physical soundness is of far more importance to the horse than to the human being. The value of the quadruped, its manner of life, its kind of treatment, the sufficiency of its food, and the comparative comfort of its lodging,—all are regulated by the soundness of its body.

THE TRACHEA AND LARYNX DISTORTED THROUGH THE CONSTANT USE OF THE BEARING-REIN.

There are those who assert roaring is no injury to the powers of a horse. Certain animals, to be sure, can hunt and keep a good pace, although thus afflicted; but Nimrod (as the well-known, late sporting writer called himself) soon found out to his cost that all roarers were not fit to ride across country. The writer has seen a sailor, deprived of one leg, dance a hornpipe with wonderful agility; but it would be folly, therefore, to say sailors were not injured as dancers by the loss of a limb. That which impedes the free passage of air to the lungs must be a rather serious detriment to exertion. The cab proprietors of London, who cannot afford to purchase very sound animals, and then to let them out at so much per day to strange drivers, have discovered a way to prevent the noise generally made by roarers. This end is attained by placing a pad under a portion of the harness. In the following engraving this pad is indicated by a white mark; though in reality it is so colored as to blend with the coat of the horse. It presses upon the nostrils near to their openings, and by thus limiting the extent of their expansion, by controlling the space through which

THE CABMAN'S REMEDY FOR ROARING.

the air has to pass, it also commands the quantity of atmosphere which is inspired. Thus the bulk of air is regulated to the diminution of the respiratory organs. The horse breathes freer, and no noise is made during the act. Yet, although such a contrivance may do very well for a London cab, the pace of which is regulated by Act of Parliament, it evidently is unsuited to the field, where everything depends on the capacity of the lungs, and nothing upon the sound made during inspiration.

Other causes are mentioned by different writers as provocatives of roaring, besides tight reining. Some of these, like thickening and ulceration of the membrane lining the larynx, are the after consequences of acute disease, and, as such, are to be prevented only by judicious treatment during the existence of the primary disorder. Among other causes, bands of coagulable lymph in the trachea, and congenital deformity, are too rare to deserve the attention they have received.

There is one consolation, however, connected with the subject which breeders may accept with confidence. Roaring is not necessarily hereditary. There is, moreover, a caution, which, associated with roaring, may be given to purchasers. When trying a horse at the top of its speed, never hold in the reins tightly. By so doing, you draw the head upon the neck, compress the larynx, and may make almost any animal, however sound, "roar like a bull." Rather wait till the animal has stopped. Then dismount, place your ear against the windpipe, and, if the horse is a roarer, the deep inspirations necessary to tranquilize the system will inform you plainly enough of the fact.

CHOKING.

Gentlemen have something to answer for, when they employ the knowing and the ignorant as grooms about their stables. The writer wishes women would undertake to tend on horses. The animal requires no service that the female strength would not be equal to, while the female mind would soon comprehend and appreciate the gentleness of the quadruped. The timidity of the equine race would meet with womanly sympathy; and no one can have observed the attachments which spring up between the female and domesticated creatures, but must in heart have confessed that the care of the stable was, as much as the watching of the sick-room, especially woman's province.

The foolish fellows, now congregated about a mews, are constantly longing for something which shall magically do their work for them. They have a firm belief in charms and an utter hatred of labor. They sigh for some spell which shall marvelously improve the appearance of

their master's property without exertion on their parts. Their pride centers in the blooming coats of their charges. They have a large confidence in all sorts of condition balls. Such secrets constitute the mystery of their craft. As a general rule, the faith is proportioned to the strength of the ingredient. Arsenic is, by the lower order of stable keepers, contemplated with positive love. Vitriol, in the uneducated groom, engenders the warmth of passion. Niter breeds delight; and confidence is, by the better sort of horse attendants, bestowed on any filth or trash. Raw tobacco has some repute; but the ashes of the weed, collected and wrapped in several papers, are much more esteemed in the generality of stables. Half a pint of human urine, forced down the cleanly throat of the horse, is not an unfrequent benefit bestowed upon the animal; but, happily, this specific is recognized only by the more learned of the class. Of all things, however, to amend condition, perhaps, a raw egg driven into the horse's œsophagus, before any food has been consumed, may be honored by the most universal regard.

Nevertheless, be the condition-worker what it may, the groom generally keeps his own counsel. Arsenic and vitriol are commonly favorites with agricultural carters, who poison their horses with the intention of over-much kindness. Tobacco ashes and eggs are popular with the more refined of the order. Both classes, however, are too self-confident and too ignorant to have any fear of consequences. With the groom, the egg is thrust into the fasting gullet. Its size excites the contractibility of the muscular fiber; the substance is soon grasped by the living tube with spasmodic tenacity. There it is retained. The symptoms consequent upon **choking** are soon exhibited; but the groom looks on unmoved. At first, he thinks the evidence of agony is proof in favor of his charm; subsequently he resolves, with the cunning of ignorance, "not to split upon hisself."

Now, in a case of this description, never depend upon any report you may have received. Recollect choking may spring from two opposite causes. The symptoms may result from disease, as strangles; or they may arise from any tumor pressing against the respiratory channel. In that instance, however, remove the cause, and the effect will cease. Of genuine choking, during health, there remain two sorts: the high and the low choke. Thus, if the substance has become fixed in the pharynx, or has only passed six inches down the œsophagus, the symptoms are urgent. The remedy must be at hand, else the life is quickly lost.

In the **high choke** the head is raised; saliva bedews the lips; a discharge soils the nostrils; the eyes are inflamed and watery; the countenance is haggard; the breathing audible; the muscles of the neck are tetanic; the flanks heave; the body is in constant motion; the fore legs

paw and stamp; the hind legs crouch and dance; perspiration breaks forth; every movement expresses agony: wherefore, if relief be not quickly afforded, the horse falls and dies of suffocation.

THE HIGH CHOKE.

The veterinary surgeon should attend such a case, prepared to perform tracheotomy, which sometimes is absolutely necessary, before anything intended to remove the obstruction can be attempted. The operation, in this case, is designed to be no more than temporary; therefore, the use of Mr. Gowing's tracheotomy tube is here decidedly in its proper place. It can be inserted; a few moments after it can be removed, and leave behind no loss of substance to be supplied or to retard recovery.

The balling-iron, after tracheotomy is accomplished, should be fixed in the mouth and the hand then introduced. Sometimes the impacted substance can be felt, but cannot be grasped. In this last case, a rough

AN EXTEMPORIZED HOOK TO RELIEVE HIGH CHOKING.

hook is to be extemporized out of any wire which may be at hand. It should be of the shape indicated in the preceding engraving, and of sufficient length to reach behind the obstruction. The hook is to be gently worked into its situation, and, with a sudden jerk, the foreign body is to be removed from the œsophagus.

Occasionally, the substance is so firmly embraced as not to permit any instrument to pass beside it. Sulphuric ether must then be inhaled, in the hope of thus overcoming the spasm. The ether, however, does not

in every instance prove successful; and, as an egg, probably, alone could be of sufficient size to resist all the measures adopted for its removal, a large darning-needle must then be procured. That, being first armed with a piece of strong twine, must be driven through the skin and made to enter the globular impactment. There is no danger of injuring nerves or arteries while doing this; all vessels are pushed on one side by the enlargement, caused by the choking substance. The integrity of the shell being destroyed, the egg may easily be broken by external pressure. Another plan proposed, is to insert a fine trocar, and draw off the contents of the egg. Either method would answer, but it is always well to wound the lining membrane of the œsophagus as little as may be possible.

The employment of the cow probang has been advocated; the egg to be broken, if this recommendation is adopted, by the employment of the whalebone stilet. The œsophagus of the cow and horse, however, are of such different construction, that he must be a very bold or a very ignorant person who dare employ an instrument made for the first, to remove an obstruction within the gullet of the last.

THE COW PROBANG, USED TO BREAK AN EGG.

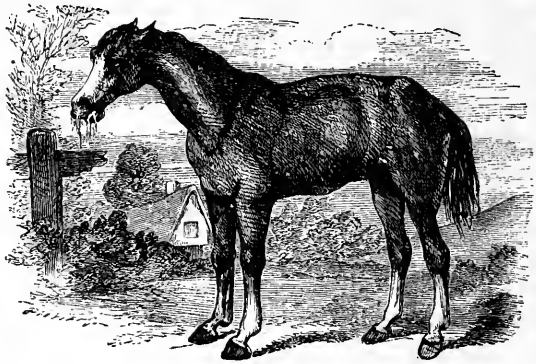
An old and hardened ball may provoke this accident; but then the impactment is not complete, because such substances are seldom of a perfect round. The sides are opened, and the obstruction is, therefore, more easily removed. Horses are not like the bovine race, so greedy as to swallow potatoes or small turnips, without mastication. Besides, man's favorite is more under domestication, and, therefore, less exposed to such accidents.

When the choking occurs low down, or within the thoracic portion of the œsophagus, the symptoms are less urgent. The animal ceases to feed. If water is attempted to be swallowed, it returns by the nostrils. The countenance expresses anguish; but the head is not held erect, neither are the muscles of the neck spasmodically contracted. Saliva flows from the mouth, and a copious discharge runs from the nose. The breathing is labored; but it is seldom noisy. The back is roached, the flanks tucked up, and the horse often stands as if desirous of elevating the quarters.

After two or three days, (for the low choke may continue such a period,) the accumulation of wind within the abdomen becomes excessive;

the breathing quickens; the pulse fails, and the animal (if not relieved) perishes from suffocation, induced by tympanitis.

For low choke more time than nature allows, when the impediment is situated near the mouth, may be occupied. No hurry nor any speedy remedy is required. Give oil, by the quarter of a pint, every hour. In the intermediate half hours give strong antispasmodics, using the horse probang after every dose of the latter. Sulphuric ether, two ounces; laudanum, two ounces; water, half a pint, will constitute the proper drench. Should the whole be returned, chloroform must be administered, by inhalation, till total insensibility results. Then, the head being extended, the probang should be introduced, and gentle but steady pressure made to force the obstruction onward. If success comes early, it is easily welcomed; but it is well not to expect success before the expiration of twenty minutes. When movement is felt, do not increase the force.



THE LOW CHOKE.

Maintain a steady pressure, never relaxing and never augmenting the power exerted. Drive the substance slowly before you, but do not, by sudden energy, risk either the provocation of spasmodic action or a rupture of the œsophagus.

Before using the probang, always calculate the length of the whalebone, so as to judge when the end has nearly entered the stomach. It is always well, if possible, to avoid forcing the end of the probang through the cardiac opening, as the termination of the œsophagus is called. The muscular fibers here are strongly developed, and are formed to resist the passage of any substance out of the stomach. To be sure, the animal is under the influence of chloroform; but that powerful agent seems more particularly to exert its action upon the voluntary muscles; whereas, the cardiac orifice is guarded by white, involuntary muscular fiber.

A few days subsequent to the removal of the obstruction, no matter where it may have been situated, feed on soft-boiled food—not bran mashes; and in case of roots not being at hand, sustain the life with smoothly-made gruel. Let the animal be observed, when watered. Should the liquid be returned by the nostrils, injury to the lining membrane of the œsophagus is indicated; stricture may then be anticipated. Though it be not probable that any medicine will now be beneficial, nevertheless, as an experiment, administer, thrice daily, four ounces of water in which four grains of chloride of zinc have been dissolved.

Such is a true and brief history of the terrible mishaps that result from the mingled knowingness and ignorance which characterize the majority of grooms. A good or simple lad would be sadly out of place in a modern stable, though the writer should recommend the employment of such to become more general. The tricks and arts of professed grooms are all worthless or injurious. To such men, however, is the timid horse intrusted; and so much are our minds enslaved by custom, that the hint only of employing women in the stable will, no doubt, be received with general indignation. Let us, however, endeavor to view the matter without prejudice. Women work in the fields; women fill the situations of men as domestic servants; women carry heavy loads; women, on the continent, perform the duties of men; women commonly tend an animal of inferior intelligence, the cow; women are subordinate to men only where strength is concerned. In the stable no strength is required. Courage, even, is out of place there. Gentleness is the only quality imperative, and gentleness so habitual that it never will alarm timidity. This attribute seems to reside in the feminine mind; and, however opposed it may be to habit, the author cannot but lament the barrier which prevents the horse from becoming known to its natural attendant.

RUPTURE AND STRICTURE OF THE ŒSOPHAGUS.

The gullet or œsophagus of the horse is, perhaps, the most compact and delicate structure in a beautiful body. Its mucous lining membrane is thrown into minute folds, thereby announcing to the studious anatomist the degree of extension the tube was designed to endure. Its exterior is enveloped by a large mass of cellular tissue, by which means the independence of its motion is secured; it will permit of less violence than almost any other part. Small as its channel and delicate as its lining membrane are, the tube is amply large and strong enough for a creature which masticates long before it deglutates once, and which is by nature forbidden to regurgitate.

However, stable-men seek not to understand but love to master the

quadruped intrusted to their charge. The butt-end of a carter's whip is a favorite resort with these people, whether serving some farmer or acting as grooms to some lord. When any mighty specific happens to stick in its passage to the stomach, the butt-end of the whip is employed to drive the obstinate charm onward. Should the obstruction be situated low down, the whip is neither small enough nor pliable enough to touch the offending matter. Should the choking mass be lodged high up, by compelling it beyond the reach of human hand, positive injury is done, and ultimate relief is rendered very problematical indeed; however, ignorance is not often to be deterred by difficulties. As the passage narrows, greater violence is resorted to; the men push and strive till at last the whip moves onward, and the stable-men congratulate each other upon "all being right at last."

When the whip seemed to yield, something more than the obstruction gave way; the walls of the canal were ruptured; an almost inevitable death then awaits the unfortunate animal. The food is rejected; drink is refused; the creature stands motionless, the picture of horror; it seems to comprehend and to await its approaching fate. The neck begins to swell; the swelling creeps on till it invests the entire body. Gas has found entrance into the cellular tissue, through the divided gullet. Death at last ensues, because the inflation impedes the vital functions, and, being corruptive, is incompatible with the preservation of living organism.

More often, however, the whip only tears the internal membrane; the obstruction has been dislodged and removed, but a worse evil has been created. The horse for a time refuses food, and the anxious master wonders "what can be the matter!" At last the pain may cease, the appetite return, for nature may strive to repair the damage. The whip usually tears a flap of membrane, which, obedient to the laws of gravity, hangs pendant within the œsophagus. Our common parent, however, does not, after the human pattern, repair the evil which man induces. She has no mortal hand wherewith to restore the rent membrane to its place. The sides of the wound, however, strive to unite, and by the date when this junction is accomplished, the mucous membrane being inelastic, the magnitude of the canal is seriously diminished. Nature seems to feel that the chief strain of deglutition will be upon this lessened spot, which, therefore, she endeavors to support and strengthen.

The dilated œsophagus or sac superior to the stricture.

The Stricture.

The tube of its natural size.

STRICTURE OF THE ŒSOPHAGUS.

Lymph is deposited about the place, till ultimately a firm and solid stricture is formed.

This, however, though bad enough, is not the worst. Lymph, after a time, has a tendency to contract. With the diminution of the external ring, of course the internal canal decreases; it is strained at every meal; but straining only provokes its contractive power, till at length hardly the best comminuted morsel could pass the opening. Such, however, rarely enters the strictured œsophagus; the difficulty of deglutition renders it impossible for the appetite to be appeased. No sooner is the food placed before the animal than, because of hunger, induced by prolonged starvation, it is bolted, almost unprepared by mastication and insalivation. Nourishment in that state cannot pass the stricture; it lodges above the contraction; still, hunger impels the horse to eat on. It does so till the œsophagus becomes distended. Gullets have been taken from animals, stretched till they are thinner than the paper upon which this book is printed, and so much enlarged as to admit a boy's clenched fist.

After the affection reaches this stage, the swollen œsophagus, when loaded, presses upon the trachea and larynx so severely as materially to impede the breathing, and it is at this period that instinct develops a strange artifice. The horse has no power to vomit; the fibers of the healthy œsophagus impel but in one direction; still, no sooner has the gullet become distended than the impaired breathing creates a desire to remove the obstruction. The chin is lowered; the crest is thus curved to the utmost, when the muscles of the neck are brought into violent action, and the impacted provender is shot back through the mouth and nostrils.

THE HORSE ENDEAVORING TO CAST UP THE PROVENDER WITH WHICH THE SAC OF A STRICTURED ŒSOPHAGUS IS LOADED.

This description reads bad enough, but regard for veracity obliges the statement that is not yet complete. Hunger, when excessive, causes the stomach to pour forth its acid secretion; this effect is produced by the sight of provender; but the gastric juice not being given food to act upon, passes into the intestines; there it provokes the most intense spasm; so that it is common to see the hind legs raised to violently strike the aching belly, while the labored breathing announces that abstinence from any kind of exertion has become a primary necessity of life.

The only palliative for so pitiable a condition is carefully-prepared food—gruel and such substances given in small quantities at a time. The horse, however, when it requires such support, generally has been so much lowered by disease as not to be worth its ordinary keep. No one cares merely to prolong the equine life; the animal is only permitted to live because of the profit man can make out of its labor; yet, for the full meanness of the last motive, let the horse proprietor seek a better class of servants for his grooms. Let him abolish the stunted, long-faced, narrow-headed compounds of mischief and of treachery which are now the common inhabitants of every mews. Before doing so, however, he must amend himself; he must be prepared to teach by example; the present groom only fulfills the wishes and panders to the pride of the master. Were a higher order of stable-men desired, the longing could easily be supplied; but fashion pronounces in favor of the present, natty affectations, and men with more solid qualities naturally refuse to compete in an arena so unworthily occupied.

Before quitting this subject, a caution must be given against all probangs as at present made. The cow probang is evidently unsuited to the equine gullet. The horse instrument has the bell of the cow probang attached to a piece of whalebone; when a narrow channel is to be entered, the bulk of the leading substance is of all importance. That which goes in front, not that which lies behind, has then to be considered; so, in spite of the whalebone, the present horse probang is nothing more than the cow instrument in disguise.

The probang intended for the horse should be formed like that employed upon the human subject. It should consist of a long slip of fine whalebone, having a sponge fixed to one end; when required, the sponge should be thoroughly saturated in water or in oil, (according to the circumstances,) then squeezed dry and forced down the œsophagus. The

The horse probang as at the present made.

That which should be employed.

THE HORSE PROBANG, AS IT IS AND AS IT OUGHT TO BE.

material would adapt itself to every cavity, would fill the largest, but could not harm the smallest; would as effectually remove every obstruction, but would not be so difficult to retract, if the head should by accident pass the cardiac orifice.

BRONCHOCELE.

This disease, which entails much suffering upon the human species, under the name of "goitre," is, in the horse, a very trivial affair. The cause of its origin has not yet been made plain. It is, however, a sign that nature suffers in some essential particular. In the sunless depths of the valleys about the Alps, it is, with man, a frightful deformity. May not the dark and close stables, in which horses too often are confined, have something to do with its production in these animals?

It is an enlargement of a substance anatomically called the thyroid gland. This body resides upon the larynx, immediately under the jaw. It is occasionally as large as a hen's egg, but seldom is of greater magnitude. Its natural size is that of half a chestnut. The enlargement appears to occasion no inconvenience, and is only objected to because horsemen consider it unsightly. Purchasers, moreover, are fastidious about buying an animal which exhibits any unusual development.

It, however, generally yields to treatment, and the animal need not be taken from gentle work during the time occupied by the cure. Let the following drink be given night and morning:—

Iodide of potassium	Half a drachm.
Liquor potassæ	One drachm.
Distilled water	Half a pint.

At the periods stated for giving the medicine, rub into the enlargement a portion of the annexed ointment. Remember, any of the unguent being left upon the hair is proof positive that sufficient friction has not been employed. The ointment can in no way benefit the external covering. The object of friction is to get the ointment absorbed. This it effects by promoting warmth, and thereby inducing dryness, both of which stimulate the pores of the skin to take up outward moisture.

When this is being accomplished, there is no necessity for extraordinary care or excessive attention. The tumor, which constitutes **bronchocele,** is certainly not endowed with morbid sensibility. Sufficient force for the purpose in view, therefore, may be safely exerted; but, at the same time, it is always well, where horses are concerned, to discard anything approaching to violence. Consequently, exercise a proper discretion when employing the following ointment:—

Iodide of lead	One drachm.
Simple cerate	One ounce.

Supposing the tumor to be present only upon one side, a piece of the ointment as large as a hazelnut will be sufficient, if well rubbed in each time. Twice the quantity will be necessary when the swelling

A HORSE WITH BRONCHOCELE.

is to be seen upon both sides of the neck; and should the part become sore, of course all application must be stopped for the time necessarily occupied by the healing process.

CHAPTER VI.

THE CHEST AND ITS CONTENTS—THEIR ACCIDENTS AND THEIR DISEASES.

CONGESTION IN THE FIELD.

It is a dangerous thing to trust a dumb animal to the guidance of an ignorant man; such a person is dangerous because he does not understand that certain preparation adapts vitality to particular usages. A racer may be a mysterious creature, about which he dares to think nothing,

A HORSE PROSTRATE FROM BEING OVERRIDDEN.

excepting that it is a horse, very beautiful and very fleet; a hunter, in his notion, is any horse running after hounds; he takes the stable favorite out for a morning canter, crosses the hunt, and immediately, with no thought of harm, joins the field. For the first few acres a very ungentlemanly person may, in a very gruff voice, request him to "hold hard and not to ride over the dogs;" but the first three fields passed, there is no need of such a caution. The horse, with that perfect abandonment of self which makes its will its master's choice, and converts the rider's pleasure into its delight, strains every nerve; its head is protruded and its legs outstretched; it struggles hard, but can make no

way. Voice, whip, and spur by turns urge the animal onward, but it has been taken suddenly from its uses; the horse thinks not of that, it only seeks to gratify the being who for a time has become its ruler. To his amusement it devotes itself, and obedient to this idea, it runs, or endeavors to run, till its limbs are with difficulty lifted from the ground; it reels, it falls, and the would-be huntsman stands over a prostrate steed.

The horse has **congestion of the lungs.** Yes; but what caused it? Over-exertion, accompanied by a consequent absence of nervous energy. The sensibility of the larynx, feeling the exhaustion before the body appreciated it, inclined inward; they prevented the atmosphere from oxygenating the blood. Deficient oxygen causes the frame, spite of violent exertion, to feel clammy cold. The brain being supplied with impure blood, produces temporary insensibility. Vitality seems to be contesting with death.

Now, were a fleam, and some one who understood how to use it, at hand, venesection might do good; neither are to be found; the animal after some time rises, and with difficulty is led to shelter. Country opinions always incline to stimulants; gin and pepper is, in all rural districts, a potent horse physic. A dose is administered; the horse seems to amend; another and another jorum is poured down the animal's throat. After the third potion it is clear to all the horse is becoming worse. Bloody water is soon blown from the nostrils; partial sweats break forth; the eye assumes a gray appearance; all at once the departing life appears to rally; the animal seems to walk with a firmer step; but just as this fact has been observed, it falls, and almost without a struggle expires.

Such is a lamentable instance of the general ignorance which prevails concerning horses. Firmly as nature may have united man and horse, gentility would dissever them; it is not polite in society to speak of man's most patient companion and most faithful slave. Gentility condescends to use animals, but loves to prate only of frivolity. The education of the young, which should be directed by the conversation of the matured, is thus neglected; boys, London boys especially, regard the stable as a place to be avoided; they view horses, not as the gentlest of created beings, but as creatures it were a breach of good manners to speak of "before ladies." They learn to consider these animals and all that concerns them, as subjects to be forgotten the instant "*society* is entered." From the ignorance thus fostered, and from the fashion which prefers to talk about trifles to conversing of those matters which constitute the facts of reality and involve the instruction of the youthful, springs that mishap which has been described as congestion of the lungs.

A noble animal is thus, by prejudice, denied the benefit which would otherwise result from social opinion. Woman, whose gentleness fits her for the companionship of the timid horse, is, as by design, kept in perfect ignorance of her lawful possession. The creature is separated even from those benefits which would result from the expression of feminine sentiment. A being that seeks protection, that with a submission amounting to a perfect denial of self, entreats for shelter and begs to serve, is handed over to the harshest order of the human race. Much more than this, it is transferred to the custody of the ignorant, who view its nature as requiring to be subdued, and think they display spirit when they treat the most fearful of living creatures as though it were a carnivorous brute bent upon ravening and destroying.

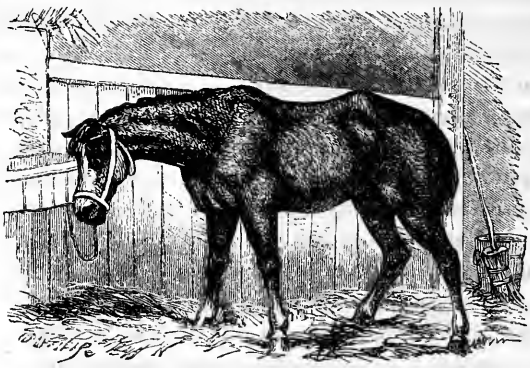
When a horse sinks in the field, bleed if possible; should the necessary means not be at hand, a vein may be punctured with a knife, and every vein in the body is then turgid with congestion. There is no difficulty of seeing where to puncture, and a pint taken at this time does more good than a gallon abstracted one hour subsequently. Then cover the body; pull off your own coat of there be any want of clothing; you caused the mischief and should not heed personal nicety when reparation is possible. Lead quickly but gently to the nearest stable; there heap hot rugs upon the body; the desire is to relieve the lungs by determining the blood to the surface; bandage the legs and cover the neck; warm the stable either with fire or by means of tubs full of boiling water. This being done, if a chemist lives in the neighborhood, procure one ounce of ether and half an once of laudanum, which dose, in rather more than half a pint of water, should be given, without any noise or bustle, every half hour. Should no chemist be near, take two tablespoonfuls of turpentine, which beat up with the yolk of an egg, and give in half a pint of water. Place a pailful of cold gruel within easy reach of the horse, and see that there is an ample bed under it. These things being done, do not leave the place before the fate of the horse is determined, which it invariably is before thirty hours have expired; for the proprietor's presence is the only surety that orders are obeyed, where horses and the uninstructed are concerned.

CONGESTION IN THE STABLE.

This affection mostly attacks debilitated or fat horses. These creatures are driven far in a four-wheeled carriage, heavily laden. One animal, of small size, has to drag an entire family. Else, the quadruped has to journey fast to avoid a shower of rain. The horse is flogged onward. A horse, whose motions are quickened by the lash, is not likely to be

very closely observed. It is much more probable the speed will be blamed as laziness, than the laboring life be pitied for exhaustion. Yet, when **congestion** follows, it is proof positive that the powers of nature were overtaxed.

The wretched slave, after the distance is accomplished, is taken from the shafts and led into the stable; it is hardly tied to the manger before a sickening sensation seizes on the body. The head hangs down; the furnished rack and manger are not glanced at. This alarms the groom's prejudices. At length the man imagines it must be thirst which prevents his charge from eating. The attendant hastens for water, but on his return he finds the horse blowing; that is, panting or breathing quickly.



CONGESTION IN THE STABLE.

This symptom, which only denotes exhaustion, used to be regarded as the forerunner of inflammation of the lungs. Doubtless, it would terminate thus seriously, were nothing done to arrest the progress of the affection. The change from extreme labor to perfect rest produces a revulsion of the system. The capillaries contract and soon become in a congested condition. Not only does this state affect the lungs, but it is present all over the body. Should the pulse be now taken, the artery will be round and gorged. The beat may be either quicker or slower than most books fix the number at; but it will be very feeble and will convey no idea of vital activity. It hardly stirs, suggesting the surging of a tranquil summer sea upon a sandy shore. Partial perspirations may break forth, and the body may become wet with a fluid of no higher temperature than the skin from which it exudes. The feet are cold; the eye is fixed; the living type of obedience moves not, when commanded; hearing is lost; all natural functions appear to be arrested, except the breathing; and that being involuntary, nevertheless is evidently disordered.

If this condition be immediately attended to, it will disappear almost as quickly as it was exhibited. Take two ounces each of sulphuric ether and of laudanum; cold water, one pint. Give this drink with caution, as the animal to which it is administered is not conscious. Have patience with sickness, and the whole will be swallowed; or the fumes will be inhaled and do almost as much good as the imbibition of the fluid.

The drink being given, do not leave the stable. Wait by the side of the horse, watching the effect of the draught. If in ten minutes the horse has not perfectly recovered, or be but partially restored, let another similar portion be poured into the body. More will seldom be required; but, notwithstanding, watch for twenty minutes after the last drink, as such fits occasionally vanish and reappear.

The rack and the manger must be emptied. Gruel is all we dare at present trust within reach of an exhausted frame. Though the animal would eat, solid food must be withheld. The body should be lightly, but well clothed; and a pail of gruel should be suspended from the manger, so that a heavy head need not be raised high to partake of it.

The next day the creature, thus treated, may return to its customary food and be as well as ever; but when the animal reached home, should the groom have been in a hurry, if company should have been waiting for dinner, and the horse should be hastily turned into the stall by the only servant kept by gentility; then the congestion is unseen, and any disease may follow it. This condition used to be, as fainting in the human being once was, treated by the abstraction of blood. But to bleed a debilitated horse, is to increase the cause of the affection, which it should be the province of physic to destroy. By the stimulant, which leaves behind no inflammatory tendency; by the subtle distillation, which speedily traverses the frame, we revive the system and awaken lagging nature once more to vital activity.

When congestion is not noticed in the first instance, and has time to become confirmed, the original disorder is invariably swallowed up in some greater evil. Pneumonia and pleurisy are the favorite shapes which it assumes; but it has terminated in fatal enteritis.

BRONCHITIS, OR INFLAMMATION OF THE AIR-PASSAGES.

This serious affection is, mostly, the consequence of man's neglect. The master rides far and fast. He dismounts at some pleasant threshold and remains long under the roof. During that time the horse stands outside, either shivering in the cold or pelted by the storm. The general treatment seems to say, that life and machinery, being equally subservient to man's will, are, in fact, the same things in man's regard.

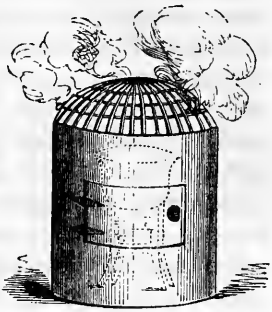
Even the wheels and bars of polished iron, however, require care or they soon become useless; the thews and sinews of a living body cannot be abused with impunity. So plain a truth should be acknowledged by something more than words. Life and functions connect men and animals. Their habits may be dissimilar and their food not alike; but, when we consider the wants of each, their liabilities and their diseases, the approach to actual sameness becomes almost startling. The man who can enjoy himself, without bestowing a serious thought upon the unfortunate steed which has carried him hither and will bear him hence, deserves to lose the life of which he is so culpably careless. Change the places of the two existences. Let the horse be rendered comfortable and the man be stationed outside. The result would be the same: the man would in that case probably suffer from bronchitis. Does intelligence require a more startling evidence of the link which binds master and servant while sojourners upon this earth?

Bronchitis is indeed a painful malady. Originally situated upon and confined to the membrane lining the air tubes, it has an aptitude to involve the entire contents of the thorax. Being the ailment of mucous membranes, it requires cautious treatment. A small blood-letting may induce the prostration no tonics can remove; a slight dose of aloes often starts up the purgation no astringents will check. It is agile at metastisis. It too often leaves behind the evidence of its visitation. Add to all this, that though so much to be feared, it does not announce its advent with a thundering double knock. It creeps on insidiously, and comes in so gradual a form, as if it intended to deceive the groom. The appetite, during the primary stage, is often unaffected, nay, is sometimes increased. Stable-men have a strong prejudice where feeding is concerned. The most educated of the class can imagine nothing more than a slight cold, while the corn is only partially consumed. Thus the disease, in consequence of delay, mounts into fury, before its presence is fully recognized.

Very rarely is the groom's attention excited during the approach of the disorder, or while a short cough simply bespeaks irritation; while the breathing is merely excited; while the legs are warm; while the mouth is moist, and the nasal membrane only a little deeper in hue than is positively consonant with perfect health. No! The stable-man is content while any desire for food remains. Let appetite be quite gone; let the horse be averse to move; the cough sore, but evidently suppressed and painful; the breathing quick and audible; the nasal membrane violently scarlet; the mouth hot, dry, and clammy; the legs and body of uneven temperatures—here, cold as ice—there, of a dusty heat. When danger cannot be mistaken, and hope has almost fled, then the

stable-man creeps to the parlor, with "Please, sir, I wish you would step and look at the horse."

In a case of such a description, abstract no blood. Depletion is forbidden, when mucous membrane is disordered. The first thing is a large loose box. Into this is put the machine represented in the annexed engraving. It is a portable boiler, having a covering of iron wire. The steam, generated by the charcoal fire, soon renders the air of the place moist and warm. It must be kept boiling day and night. It is of more service during night than day, and it should be very gradually withdrawn.



STEAMING APPARATUS FOR HORSES WITH BRONCHITIS.

The water, as it is exhausted in the above boiler, should be supplied with more at the full temperature. Very little fire will then keep up the steam, though, as the fumes of charcoal are decidedly unhealthy, it is always well when those fumes can, by means of a pipe, be conveyed to the outside of the building; if that be impossible, let every door and window be left open; the necessary admission of air may impoverish the steam, but the vapor is too dense to be entirely dispelled. The steam acts upon the lungs; warm, moist air being soothing and curative to the thorax affected with bronchitis. When the apparatus cannot be obtained, the large nose-bag should be frequently applied during the day.

Some scalded hay is also to be fixed under the throat by means of an eight-tailed bandage. A macintosh jacket is then laid on the floor, and the horse gently led forward till one leg rests within one armhole. The opposite leg is to be raised and put through the other opening; the cloth is next lifted up and temporarily fixed upon the animal; afterwards, have six pieces of flannel, two three yards long and the entire

EIGHT-TAILED BANDAGE FOR RETAINING ANY SUBSTANCE AGAINST THE THROAT OF A HORSE.

width of the fabric, the others half a yard long and a foot wide. Saturate three of these with cold water; having folded the long piece, apply it over the back, equally to either side; the short pieces place upon the sides of the chest; fasten the jacket over the spine. When the flannel is

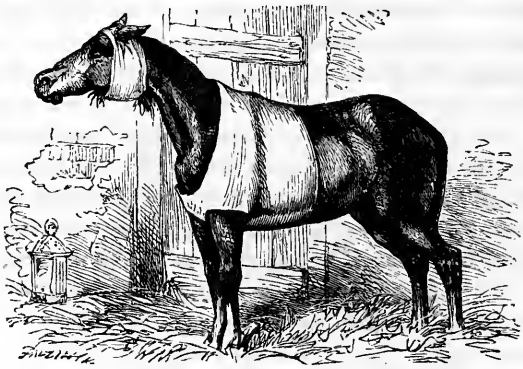
warm, remove it; replace it immediately with other flannels, which should be ready for this purpose. Do this continuously for at least a couple of hours, after which time the flannel may remain on; but must, on no account, be suffered to become dry. The jacket and flannel should be worn for a week subsequent to restoration.

Then prepare the following:

Burgundy pitch	Half a pound.
Powdered camphor	Two ounces.
Powdered capsicums	Half a drachm.

Melt the pitch. Take the vessel which contains it off the fire; throw in the other ingredients, stir well, and apply while warm to the front of the neck, as low as the jacket will permit.

For bronchitis, consisting principally of aggraved congestion, prepare



A HORSE DRESSED FOR BRONCHITIS.

the following drink, and repeat it every half hour, until the pulse has regained its tone; then give the drinks at longer intervals, and ultimately reduce them to three during the day, which continue till restoration is perfected:—

Sulphuric ether	One ounce.
Laudanum	One ounce.
Water	One pint.

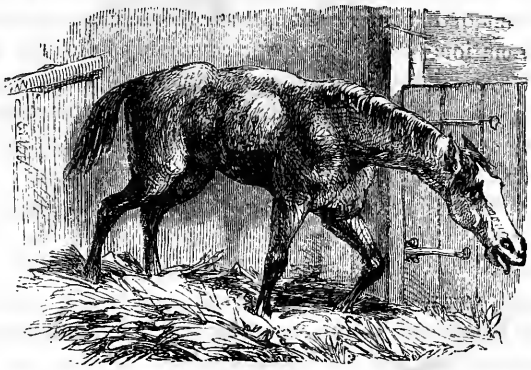
Should no effect be produced after the third drink, discontinue the frequency of the ethereal medicine, and substitute the following:—

Infusion of aconite	Half an ounce.
Extract of belladonna (rubbed down with one ounce of water)	Half a drachm.

Persevere with the above till the pulse amends, when withdraw the aconite, but keep on with the belladonna, half a drachm of which may be

added to each dose of the ethereal drink; which ought to be resumed, should amendment ensue upon the administration of the aconite draught.

Let the food consist entirely of thick gruel. The appetite occasionally is unaffected during bronchitis; but, however pleasant it may be to behold a horse masticate, all solids should be withheld, especially during the acute stage. Nothing is so injurious to respiration as a loaded stomach, and a single meal (if permitted) would speedily aggravate the symptoms of this disease. When the disorder has subsided, food must be carefully introduced; the water should be, as grooms say, "chilled," or, in ordinary language, should have the chill removed. Boiled roots or crushed and scalded oats should constitute the earliest approach to natural diet. Hay should be given with extreme caution, the desire being to nourish the body, not to load the stomach. A bundle of grass each day may be allowed upon recovery being assured; and when hay is at length presented, mind that for the first month it is thoroughly damped; for nothing more retards recovery after bronchitis than the inhalation of those dusty particles with which hay too often abounds.



THE COUGH OF INCURABLE BRONCHITIS.

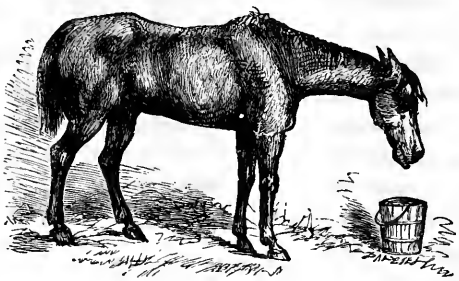
When the disorder is to terminate fatally, the proprietor, in the majority of instances, speedily learns the fact. The pulse continues unamended at first, but soon grows very quick and tremulous; the breathing becomes more painful even to the spectator. Every inhalation appears to shake the body; yet, so eager is the desire for air, that the haste and violence of the respiration evidently defeat their object. The nasal membrane assumes a bluish tint, a foul, bloody froth hangs about the nostrils; the eyes are dull and fixed. The cough is the most distressing symptom. It occurs in fits, and during the paroxysms the wretched animal reels about. The noise cannot now be restrained; the horse has no strength to struggle with disease. The sound which shakes

the sore lungs and checks the breathing that was already short to suffocation, cannot now be suppressed. It continues until a quantity of discolored fluid is ejected from the nostrils, then a brief respite ensues; but, as time progresses, the fits grow more severe and much longer, while the strength to endure them even more rapidly decreases.

It reads sadly, that hundreds of horses have thus perished without making any impresssion upon either masters or men. The directions, which have been given at some length, will probably be discarded by grooms as far too troublesome; they like the man who can give physic to a horse when the animal is sick, and "wants no more bother made." The proprietors will object to the expense and the personal superintendence which is necessitated. Most gentlemen hurry through the stable as though they were intruders upon their own premises, and expected all business there transacted to be dispatched most expeditiously. The master, when in the stable, is never at home; he is generally very much abroad; the groom, if a horse dies, always knew of something which must have saved the life, only it wasn't tried; and to prove his comprehension of the malady, in answer to inquiries, he says, thereby showing the real extent of his information, "The horse caught a cold and died of an inflammation." The employer commonly follows a system which custom approves; he does not trouble himself to hire a better qualified or a less prejudiced attendant for his stables. The place and all that is in it continues the same, only it contains one life the less. The lesson is thrown away, and all this great suffering in a huge animal has produced no more than a passing regret for the pecuniary loss.

PNEUMONIA.—INFLAMMATION OF THE LUNGS.

Under this title our grandfathers congregated all affections of the lungs. Congestion, bronchitis, pleurisy were all regarded as stages of



THE COMMENCEMENT OF PNEUMONIA.

pneumonia. This error, even at the present time, confuses the descriptions of most authors. True pneumonia is, consequently, now more

rarely encountered; such a result accords with the knowledge gained by anatomical investigation concerning the structure of or the substance of the lung. The bronchial tubes constitute a large portion of these organs, but their disease is termed **bronchitis.** The pleura covers the lungs, but its inflammation is called **pleurisy.** The blood is affected during all disorders, but the vessels themselves are rarely implicated; involvement of the absorbents constitutes glanders and farcy. Yet, when the tubes, covering, veins, arteries, and absorbents are abstracted, there remains only cellular tissue; that structure is not apt to take on inflammation, and when it is so implicated, the inflammation of cellular tissue is regarded as **rheumatism:** consequently, there remains only a species of general disorder of all the constituents to stand for pneumonia.

Horses supposed to have perished from pneumonia, not unfrequently, when examined after death, present hydrothorax or dropsy of the chest; thus proving the pleura to have been affected. However, such vivid descriptions of pneumonia are bequeathed us by our ancestors, that we are, to a certain degree, overpowered by the authority of assertion. Too many are actually overawed by the positiveness of the dead; thus, in many instances, influenza is treated as inflammation of the lungs; dropsy of the chest, brought on by weakness, naturally ensues.

When **acute pneumonia** (as it is called, which really represents a subacute disorder of all the contents of the lungs) does occur, it is rather lingering in its development; the breathing is labored and slightly accelerated; the pulse is less increased than would be expected; the artery is full, and the beat seems driven by some hidden force through a gelatinous obstacle; it bulges out, and then all is still for an interval, after which the operation is repeated. The horse has lost all spirit, indeed, a considerable portion of its consciousness has evidently departed; it stands as though from giddiness it feared to fall; its legs are separated and strained outward to the furthest limit.

THE POSITION ASSUMED BY THE HORSE DURING AN AGGRAVATED ATTACK OF PNEUMONIA.

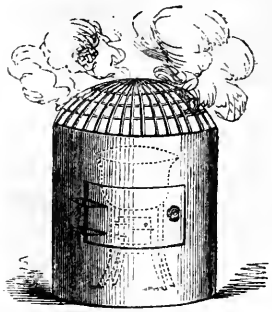
The head and ears are dejected; the coat rough; the extremities cold; the body without warmth; the visible membranes discolored, and the bowels costive; in short, the animal appears oppressed by some heavy misfortune. Feeling

seems half dead; thus we are warranted in imagining that the attack has embraced all the component structures of the lungs, and that it consists in no small degree of congestion.

The general practice is to bleed, and to bleed largely; to let the current run till the animal is on the point of fainting; then, as bleeding always quickens the pulse, more blood is abstracted to lower it; this not answering, the same plan is adhered to. The vein is tapped and the liquor drawn, as though the vital fluid were table beer, and the animal an inanimate cask. At last, nature resents such repeated depletion. No sooner is the fleam struck than weakness is alarmed; then the eyes and nostrils are sponged with cold water, to procure a *little more* blood; until, at last, the animal dies, as practitioners have said, because the horse could not bear bleeding enough!

The writer does not advise to destroy the strength, which is now essential to surmount disease. Bleed only once, then take no more than will afford ease to the sufferer; if a pint accomplishes that object, a pint is sufficient. Be guided neither by the quantity abstracted nor by the faltering of the pulse; watch the head of the animal; so soon as that is raised and the general aspect denotes a sense of life, pin up the orifice; but think twice before you bleed once, and shun the operation if it can possibly be avoided, or if the fluid has a thick and black appearance, dribbling down the neck, not spirting from the vein.

When you first behold the horse, carefully examine it; place your ear to the side; in health there is only a gentle blowing sound audible; if more than that is heard; if something within the chest seems to grate or suck; if, in addition, any noise, as of a huge pair of bellows at violent work, is detected, make up your mind to a case of pneumonia. No time is to be lost; procure a large and airy loose box; strew it thickly with tan; do this, because pneumonia has an aptitude "to fall into the feet," as grooms say, or, in other language, the disease is subject to metastisis, and the inflammation will sometimes quit the lungs to reappear in the feet; something soft and cool is most likely to prevent such a mishap; therefore, when the tan is strewn upon the floor, moisten it with a watering-pot, and have the iron shoes taken off the animal.



A STEAMING APPARATUS.

Place a pail of water within easy reach of the horse. Food—even gruel—is not now required. If it is winter, put a hood upon the head and throw a loose cloth over the loins and

quarters; then introduce the steaming apparatus, and set it to work with all speed, leaving every window and door open, while the vapor is generated. The air being loaded with vapor, take off all clothing; but give, in the first instance, so soon as it can be procured, the following drink:—

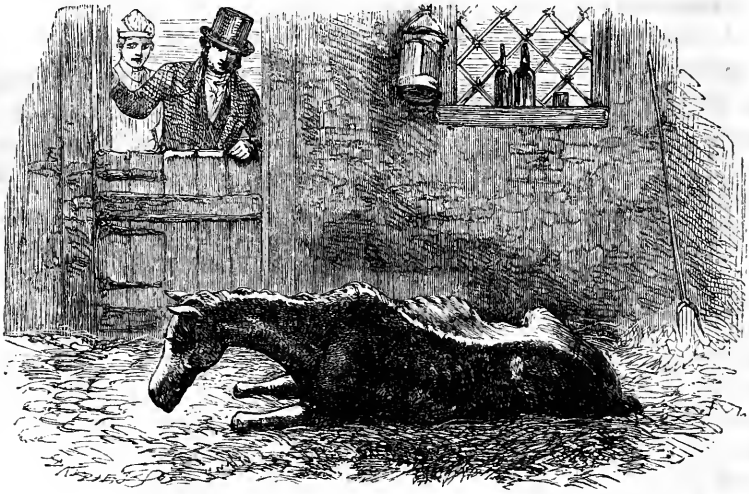
Solution of aconite root	Half an ounce.
Sulphuric ether	Two ounces.
Extract of belladonna (rubbed down in half a pint of water)	A drachm.

Repeat this dose three times in the course of the day and once during the night, keeping up the steam all the time. Watch the pulse and observe the breathing. When the first amends, the quantity of aconite may be diminished; when the last grows easier, the amount of belladonna may be decreased.

These medicines should be persevered with, increasing the ingredients or diminishing them, as the symptoms warrant. Thus, if the pulse prove very obstinate, six, or even nine doses of half an ounce of solution of aconite in a little water, without other ingredients, may be exhibited in the twenty-four hours. Should the breathing be severe, the belladonna may be augmented in a similar proportion. Until the symptoms are more than merely amended, the nourishment ought entirely to consist of hay-tea, with a little oatmeal boiled in it. When improvement decidedly takes place, the hay-tea may be made a little thicker, and a couple of pounds of boiled potatoes allowed per day. So soon as the appetite seems to be eager for food, a pint of crushed oats, thoroughly scalded, may be given six times during the day. Great care, must, however, be taken not to overload the stomach, or to permit a full meal: a single gorge is likely to provoke a return of the disorder. Little and often must be the rule at first; and the quantity may be increased while the frequency is diminished, as recovery is confirmed. Let some days elapse, however, before any hay is presented: this substance rather amuses the horse and fills out the stomach, than nourishes the body. Allow to enter the stable none of the groom's favorite drink, which consists of a handful of flour stirred into a pailful of cold water. The flour is not in solution —it soon sinks to the bottom; and the horse, which you intend should in some degree be nourished, receives nothing but water.

Order the cook to prepare the gruel, and see that she does it with as much care and cleanliness as she would exercise for any Christian. The groom's gruel is hot water, which may or may not be boiling, stirred upon a certain quantity of meal. A lady may conjecture how she would relish such a composition sent to her sick chamber; and the horse is as nice in its taste as any human being possibly can be.

Neither permit any grass to be put before an animal which is recovering from pneumonia. Grasses of all kinds contain the least possible nutriment in the largest possible bulk. The object now is to accomplish the introduction of nutriment in the most concentrated form. A distended stomach impedes the action of the diaphragm, and thereby is most injurious to the breathing.



A MUCH-WISHED FOR SIGHT DURING DISEASE OF THE LUNGS.

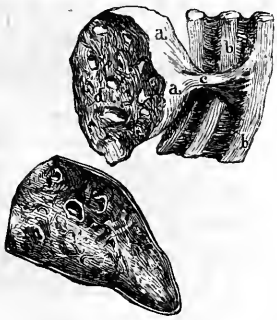
The first marked sign of improvement, during pneumonia, is the animal lying down. When this wished-for sight is before your eyes, do not enter to disturb the prostrate horse. It has, under disease, stood for several days. Its limbs must ache and its feet feel sore: make no noise, therefore. Respect the repose of the sufferer, and be grateful that your horse, probably, has escaped from danger.

If, subsequent to recovery, the restoration to perfect health is not so rapid as you could desire, be very particular about the feeding. At the same time apply a strong blister upon the front of the throat, down to the chest and between the legs. That blister having worn itself out, apply another upon the sides of the throat and the *upper part* of the ribs; but respect the sides of the thorax; because the animal rests on these parts, and, during recovery, rest is of more value than medicine. Nothing, therefore, should be permitted that is likely to prevent so beneficial a state from being indulged in. Abjure all purgatives—these favorite potions are too debilitating for pneumonia; forbid all mashes; nature, as she permits recovery, will, at her own time, relieve the body;

adhere to the treatment which has been laid down; permit no tonics; care and good food are the best restoratives. But, above all things, be certain the health is thoroughly recovered before the horse, which has been seriously ill, is again compelled to labor.

ADHESION 1. THE PLEURA PULMONALIS UNITED BY DISEASE TO THE PLEURA COSTALIS.

a a. The pleura pulmonalis, or the natural covering of the lung.
b b. The pleura costalis, or the lining membrane of the chest.
c. The false adhesion, fixing the lung and preventing its full expansion.
d. The divided surface of the lung.



HEPATIZATION 2. OR THE LUNG BY DISEASE CONVERTED INTO A SUBSTANCE RESEMBLING LIVER.

Several states are mentioned as the consequence of pneumonia. Adhesion of the lung to the covering of the thorax is alluded to as one result of this disease; but before adhesion could take place, inflammation must have existed in the pleura, which lines the interior of the chest and envelops the lung itself; consequently, pleurisy must have been present before the pleura could be sufficiently inflamed for adhesion to ensue. The other condition is the result of congestion; the tubes and vessels alike are clogged, the lung is converted from its soft and spongy natural texture to a firm and solid substance resembling liver. But congestion is not pneumonia, neither is a solid state of the bronchial tubes by any means good evidence that pneumonia has provoked the morbid alteration.

Now, in conclusion, we must answer the important inquiry,—what is the cause of this affliction? Poverty, without dependence, inherits few disorders. Nature, in mercy, spares the peasant those visitations which are heaped upon the nobleman. To what, then, shall we attribute the ailment of a life so entirely in possession of another as that of the horse? Is it untruth to point to that which in ordinary language passes for the master's thoughtlessness? The creature is often worked, not to the point of fatigue, but is goaded to the possibility of exhaustion; fed upon the cheapest sustenance, and lodged according to the proprietor's convenience; made subservient to the whims of vanity, and forced to conform to the habits or the caprices of fashion; now, waiting patiently in the storm; then, hurried along the dusty roads through the parching heat; now, stopped during a long journey and expected hastily to consume the provender which shall support life the remainder of the distance: treatment like this will provoke more acute evils than pneumonia. The last disorder is of too dull a type to be begotten by so harsh a parent.

The horse which is pampered, or has much to eat and little work to do; the creature which for days may stagnate in the stable and then be suddenly brought forth to extraordinary exertion; the horse whose

owner is capricious; the animal whose work is uncertain; the quadruped which now is idle, and now is required to make good the lost time,—is the living being prepared to exhibit any slow disorder—to consume itself with the disease which an existence, properly treated, would possess the energy to resist.

Is it strange, that a creature doomed to so much and such deep subserviency, occasionally fails, even when possessed by what men call the best of masters? Is it just reason for wonder, that flesh occasionally rebels against the treatment which human ignorance subjects it to? Were the horse not a very hardy animal, were not the life implanted as firmly as the frame is set, it would not survive a tithe part of the usage it now endures, and, notwithstanding, continues to live on and to obey.

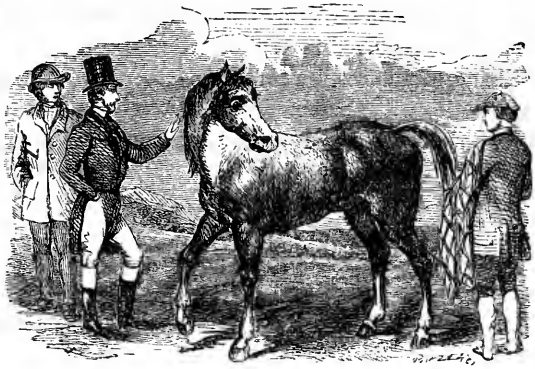
PLEURISY.

This most painful disease, like those of the lungs generally, visits valuable horses during the years when they are most esteemed. The unbroken colt is seldom attacked, and the aged animal is, to an almost equal degree, exempt. The young steed, newly stabled, is liable; and that liability remains up to the sixth year, when it gradually subsides. It is a terrible affliction. Its anguish is localized and concentrated. It is inflammation of the fine, glistening membrane covering the lungs and lining the inside of the chest. At every inspiration and at every expiration the inflamed surfaces must move upon each other. To breathe is the primary necessity of the creature's life. It cannot exist and refuse to inflate the lungs; yet is existence purchased at a price worth many years of happiness. The inflamed surfaces cannot remain quiet; yet, to render the condition of motion the more acute, inflammation stops the secretion, which, during health, smoothed and lubricated the passage of the membranes. During disease, the pleura is swollen, rough, and dry; it grates or scratches as one surface is, by the necessity to breathe, dragged over the other.

Membranes are sensitive in disease in proportion to the fineness of their structure, and to their insensibility during health. The pleura belongs to what are termed serous membranes. These line closed cavities; as the chest, the abdomen, and the joints. Of the existence of none of these are we conscious while they are free from disease; but, let the inflammation set in, and it would be difficult to decide which of them is the most painful. Fortunately, however, **pleurisy**, when concentrated or singly present, terminates generally by the second day.

The symptoms, therefore, are quickly developed. The violence on their first appearance has been so great, that an attack of **pleurisy** has

been mistaken for a fit of spasmodic colic. A little care will guard against so fatal an error. The pulse, in colic, is always natural at the commencement, and the fits, when they first occur, are invariably of short duration. In pleurisy, the vessel *strikes* the fingers; the blow is strong, and the artery is thin; the pain is continuous; the agony never remits or ceases; the horse never feeds; the body is hot, and indicates the fire within; the feet are icy cold; the muscles are frequently corrugated in patches, and partial perspirations break forth upon the surface; a cough is often, not invariably, present; it is always suppressed and dry; it suggests no notion that the intent is to clear the throat; the inclination to cough, from the larynx sympathizing with the lungs, is great; the feeling cannot be entirely mastered,—but the horse is fearful of indulging an impulse, which would violently shake the inflamed chest. The ear, placed against the ribs, detects a grating sound, and the respiratory murmur is less clear than usual. Pressure made on the free interspaces between the ribs sometimes deprives the animal almost of consciousness; it shrinks, and were the torture continued, it would fall. At other times anguish maddens even timidity,—the foot is lifted or the teeth are displayed, to repel the tormentor. When left alone, the head is frequently turned toward the side, with a piteous stare of wonder and inquiry. Altogether the animal is, as it were, inspirited by the disorder.



A HORSE SUFFERING UNDER PLEURISY.

The fore foot is scarcely ever quiet; it constantly paws, which action, in the horse, always expresses impatience or pain. The breathing, of course, is peculiar; a full inspiration the animal dare not take. Before inhalation is half completed the ribs fly backward. However, the backward action has hardly been accomplished before anguish once more compels a change; thus the breathing, to a looker-on, appears short, jerking, quick, and always imperfect.

The treatment must be active, as it is likely to be short. At the first outbreak, abstract enough blood to ease the horse, but take no more; place the sufferer in a cool, loose box; put woolen bandages upon all the legs, but leave the body unclothed; give, every quarter of an hour, a scruple of tincture of aconite in a wineglass of warm water. Feel the pulse before each dose; when that has softened, discontinue the aconite; every second hour then administer one ounce of sulphuric ether and of tincture of opium in a tumbler of cold water, to dispel any congestion that may lurk about the pleura, and also to lend smoothness or fullness to the pulse.

Pursue these measures for the first day and night. On no account be tempted to bleed a second time, for fear of that weakness which generates hydrothorax. When the pulse and pain are amended, should the cough remain, introduce the steaming apparatus twice described under the headings of the two previous articles. The bowels are generally costive; be not alarmed; with the departure of the disorder they will relax. Place lukewarm water within the easy reach of the horse; but before the symptoms abate, introduce nothing of a more stimulating nature. When the disorder lessens, hay-tea may be allowed; as improvement increases, the diet may be gradually augmented after the manner described, when considering the treatment of pneumonia. Such care is essential, because any violent disorder in a confined part of the body has a tendency to involve other structures, and the danger of this increases as the inflammation is removed from the surface.

The tranquilizing of the respiration, the softness of the pulse and the return of the appetite will announce the departure of pleurisy. When these longed-for indications are remarked, blister the throat and chest; should any seeds of the malady appear to be not entirely removed, repeat the blister to the throat and chest. Should the bowels not be relieved, throw up copious enemas of blood-warm gruel; nothing more must be attempted. Aloes or salts are poisons during pleurisy; wait patiently, and in time the establishment of health will restore all the natural functions, or if they are very confined, a bundle or two of cut grass may be presented with the usual food.

A yellow, transparent discharge from the nostrils, occasionally streaked with blood, and more or less otherwise discolored; a horrible anxiety of countenance, which seems to appeal mutely to every human being the saddened eye rests upon; quickened breathing, a more rapid but a sinking pulse, and a leaden state of the nasal membranes declare the probability of a fatal termination. Pleurisy, however, mostly ends in hydrothorax, for the character of which the reader is referred to the succeeding pages.

Now comes the sad inquiry, what is the cause of pleurisy? All kinds of things may excite it; but those things which lead to so much suffering in an inoffensive animal, are under the control of man. Overexertion, being driven or ridden far and fast, the spirit being stimulated, and the energy promoted by potent drinks; for men will give the contents of the public-house to the horse when a wager is at stake, and will lash, while the limbs can move, to win any pitiful bet,—these circumstances not unfrequently provoke pleurisy. Injuries received externally not unseldom start up internal inflammation. Hurts calculated to lead to so serious an evil, together with broken ribs, will not be surprising to those who have seen the unseemly instruments which man will, in his rage, seize upon to strike the animal with. Colds, aggravated by change of temperature, as waiting long in the rain and being flurried home afterward; inattention in feeding, thus generating a plethora, is apt to disorder any internal organ, and many other such like causes will generate the disease.

And what right has man to inflict so much agony upon any life intrusted to his care? What right has humanity to complain of tyranny in its superiors, when the human race can neglect and entail such anguish upon the beings beneath them? The greed of gain or the pride of winning are the first motives assigned as the promoters of this terrible affliction; next come the gratifications of passion; then follows carelessness for another's welfare, etc. Which of these several causes is worth the torture of a living body? such torture, too, as the rack cannot equal, and human malice is happily forbidden to rival!

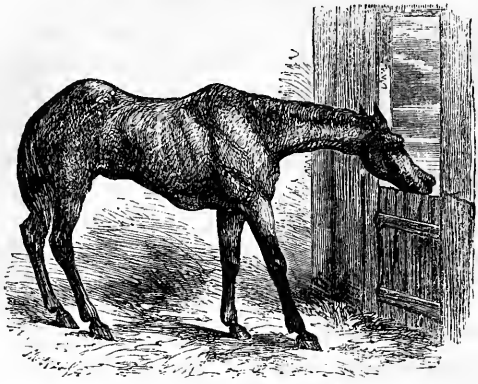
A little self-restraint instilled by a better plan of education, a little more humanity enforced by the teachers of religion, to instruct that man should not view himself as the owner of the earth which he temporarily inhabits; that man should not consider himself the proprietor of the lives which share the globe with him; that man should be actuated by genuine CHRISTIAN LOVE toward all animated nature, feeling kindly for the lives akin to his own, and acknowledging, as fellow-sojourners, the creatures by which he is surrounded,—then, how much affliction might be eradicated from that which wickedness alone renders a "vale of tears!"

HYDROTHORAX.

This is the consequence of the latter stage of pleurisy; or rather, to speak with caution, we fear it is often the result of the severe treatment adopted to dispel that malady.

Man leaves his property, which is very ill of pleurisy over night, hopeless that the animal can survive till morning. On returning, however,

to the stable early on the following day, to his surprise he beholds the horse actually looking better. The pain has evidently abated, if not altogether departed; the eye is more cheerful; the manner more encouraging. Having observed this, attention rests upon the flanks. The



A HORSE DYING OF HYDROTHORAX.

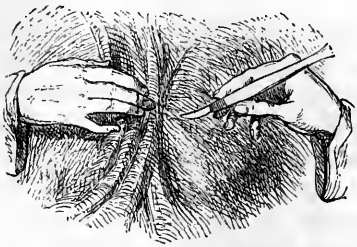
motion of these parts is greatly increased. They are now forcibly brought into action. The suspicion is awakened. The ear is applied to the chest. Near the breast bone, or low down, all is very quiet. A little higher up nothing can be heard; but rather past the middle of the ribs the sound of breathing is once more detected. Again and again is the experiment repeated, until the disappointed proprietor is forced to believe that which is against his hope.

Still clinging to chance, after conviction has gained possession of his mind, there is another trial he will make to render despair a certainty. He seeks some man—any one will do; and having found a loiterer, he returns with him to the stable. He places this individual upon one side of the horse, and tells the man to slap the side of the animal with the open palm, when the word "now" is spoken. This being arranged, the master goes to the opposite side. He puts his ear to the place where the silence ceased. Having assured himself the spot he has chosen is correct, he pronounces the monosyllable "now." Directly afterward a dull sonnd is heard, and a metallic ring or splashing noise is soon afterward audible.

All now is confirmed, yet, "to make assurance doubly sure," the owner tries to take the pulse at the jaw. There is none to be felt! The hand is then placed near the chest, upon the left side and over the region of the heart. The sensation of a throb, coming through water, is percepti-

ble. The last requirement is confirmed. The horse has **dropsy of the chest,** and the termination of the disorder is all but certain.

The first thing to be done, in these cases, is to draw off the liquid before it soddens the pleura and further distresses the already labored



MAKING THE PRIMARY INCISION FOR TAPPING THE CHEST.

A TROCAR WITH THE STILET UPON IT.

REMOVING THE FLUID IN HYDROTHORAX.

breathing. The manner of performing this operation is very simple, and the operation itself remarkably safe. A spot near the inferior margin of the chest being selected, a small portion of skin, between the eighth and ninth ribs, is pulled forward, and then a narrow slit with a sharp knife is made upon the place which the skin originally covered. A trocar, armed with a stilet, is then inserted into the opening, and so much force applied as suffices to propel it onward. The moment all resistance ceases, the trocar is within the cavity of the thorax. The stilet is then withdrawn, and the water usually flows forth.

There is in this operation no danger of piercing the lung. The trocar must be driven upward and onward, very far and very forcibly, to induce such an effect. The lung is protected from all lawful violence by the water, on the top of which it floats.

There is, however, a dispute concerning how much of the fluid should be extracted. It is a good rule to take all you can get, or all the condition of the horse will permit to be abstracted. Do not commence the operation with any determinate quantity in your mind. Take all, if the horse will suffer so much to be withdrawn; but if the animal, after the loss of a quart, shows signs of approaching faintness, withdraw the trocar, let the skin fly back, and wait a more favorable opportunity for the next attempt.

In an hour or two the trial can be repeated. Make a new opening (for never risk exciting irritation in the original wound, by again thrust-

ing the trocar through it.) There are but few precautions to be observed during the performance of tapping the chest. It is usual to teach, that the posterior border of the ribs is to be avoided, because this portion of the bones is grooved for the reception of the artery. Anatomy, however, shows that such vessels are amply protected by the grooves in which they travel.

There is also some selection to be made in the trocar which shall be employed. If the tube be of too great a size and permits the fluid to gush quickly out, nature may sink under the sudden change induced: the water, consequently, ought to be very gradually abstracted. For this purpose, the instrument cannot well be too small. The most diminutive of those made for human practice will be quite large enough, so that the bulk of liquid within the chest may be insensibly removed, and the horse be scarcely aware of the change. Those trocars, however, which are made for the human practitioner will not be long enough; therefore one must be procured longer, but of the like bore.

Sometimes, after the trocar is properly inserted, no fluid will pour forth: the operation is then all but hopeless. It must have been so long delayed that various substances have been secreted. These cover the interior of the chest. They obstruct the mouth of the cannula and prevent the liquid issuing by the tube.

It is customary, in these cases, to employ a whalebone probe. This is inserted up the trocar, and then moved about in different directions. The intention is to break down the layer of pus or lymph lining the thorax, and to allow the water to leave the cavity. But this is almost needless, as the author does not recollect a single case of this description which ultimately survived.

It is also advisable to draw off the fluid from both sides at the same time, so there may be no pressure upon the delicate divisions of the chest, and upon the important vessels within them. But happily the fluid is, in the first instance, generally confined to one side only.

Always pull a piece of skin either backward or forward, before the incision is made through the integument. The reason for doing this is, because, when the trocar is removed, the skin may resume its proper place, and act as a valve, keeping out the atmosphere from the cavity; for external air, getting into the interior of the chest, is proved to be most injurious to life.

There is to be tendered but one last admonition; even this has been in a great measure anticipated by the previous observations. The animal must not be left during the operation. Whatever time may be consumed by the withdrawal of the liquid, the operator must remain a patient spectator of the slow abstraction; for if the horse should be

left, syncope may come on during such absence, and the animal, on the person's return, be found prostrate upon the ground. On the first sign of weakness, the cannula should be at once removed; for, should it be suffered to remain, regardless of this caution, the horse may even die through sudden collapse.

The treatment, after the withdrawal of the fluid, is entirely changed; pleurisy has now departed, and weakness is left behind. The most nourishing but carefully-prepared food must be given; boiled oats and beans may be allowed in any quantity which the animal will consume, while the following ball should be administered, night and morning:—

Iodide of iron	One drachm.
Strychnia	Half a grain.
Sulphate of zinc	Half a drachm.
Extract of gentian and powdered quassia .	Of each a sufficiency.

That which will denote a fatal termination is restlessness; neighing; partial sweats; swellings under the region of the chest, and a distressed breathing, which nothing can relieve. The death struggle is as short as the disease has been painful.

DISEASE OF THE HEART.

This affection is characterized by various names in scientific books, as carditis, pericarditis, hydrops pericardii, inflammation of the pericardium, etc. All such conditions in the horse were discovered by examinations instituted after death, when, unfortunately, all opportunity of observing the symptoms had ceased. Veterinary science cannot distinguish one state from another, while life exists. Probably this deficiency may be attributed to the inutility of such discrimination. **Disease of the heart** in horses is incurable. In man, who can strictly conform to his physician's orders; avoid excitement; abstain from exertion; eat only such a quantity of such a food, prepared after such a manner; feed at such an hour and rest at such a time; who can live by rule;—in man, the diseases of the heart are only to be delayed, not driven from their certain issues.

DISEASE OF THE HEART IN THE HORSE.

Practically, therefore, so the heart be diseased, it is of small import what shape the disorder may assume. The death is always sudden; it is likely to occur when the horse is journeying at its topmost speed; when accident generally follows. Consequently, it is perhaps wiser to take

the life, thus afflicted and thus dangerous. The horse may appear blooming, may even be skittish; yet, the existence shall at any moment be cut short. Auscultation affords the surest means of detection. Place the ear close to the left side and lower part of the chest; if any unusual sound be audible, conclude the heart to be diseased.

The signs visible, externally, are sometimes sufficiently emphatic to admit of no doubt. The eye is expressive of constant anguish; the countenance is haggard; the pulse is feeble and irregular, but the heart throbs; its throbs are visible, and frequently they are to be seen as plainly on the right side as on the left. The beat is occasionally so violent as to shake the body. The carotid artery can be felt to pulsate in the neck. The regurgitation, within the jugular vein, is nearly always excessive,—it often reaches almost to the jaw. It takes place by jerks, which ascend high and higher, each becoming less and more weak, as it mounts upward.

An attempt to represent this has been hazarded in the illustration. It is, however, impossible to truthfully depict action; and the reader will comprehend the jerks, in nature, do not occur all at the same period; but the first subsides before the second can be exhibited.

The appetite is sometimes ravenous; more often it is fastidious. The breathing is not accelerated, excepting during the existence of pain; lameness is occasionally witnessed in one fore leg; dropsical swellings and abdominal pains have been observed. The animal, when progressing, will suddenly stop, tremble, and appear about to fall; as suddenly, it will recover and proceed upon the journey. Noises, expressive of acute anguish, are, under the impulse of the moment, occasionally uttered. Sometimes the horse cannot be made to move, and it is always averse to turn in the stall. Often it is seen to yawn; but more frequently has been known to heave long and deep-drawn sighs. No ascertained sign, however, announces the climax of the disorder to be near at hand. Death is always unexpected, and, therefore, is a surprise.

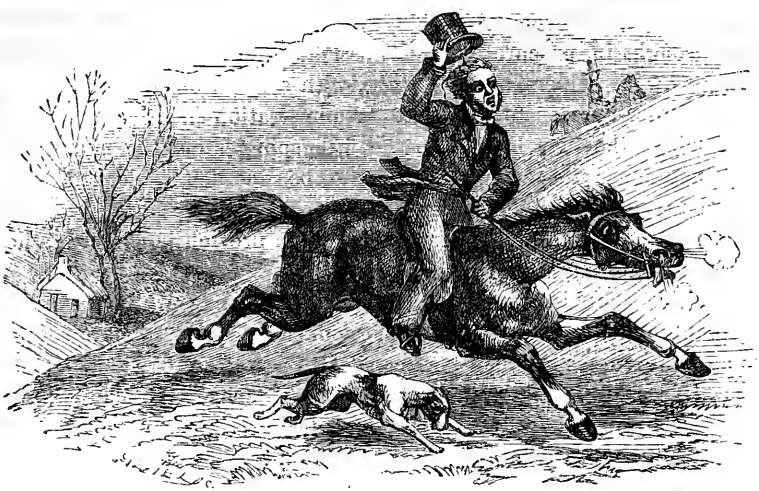
The cause of heart disease is unknown. It may, however, be surmised from the fact that it is most common in gentlemen's stables, and is all but engrossed by the animals which have for years been subjected to the abuses therein practiced. It is incurable; and all physic is thrown away upon this disorder.

CHAPTER VII.

THE STOMACH, LIVER, ETC.—THEIR ACCIDENTS AND THEIR DISEASES.

SPASM OF THE DIAPHRAGM.

THIS is generally provoked by the heedlessness of the rider. A horse is "overmarked," as the condition is technically called, when the animal is urged onward to the point of falling. The person who may occupy the saddle then becomes conscious of a strange and loud noise coming from the body which he strides; it appears to the equestrian as though



THE YOUNG GENTLEMAN AND THE OLD HORSE.

some demon were located within the carcass, and were violently striking the sides. Should the indication be observed, the noise will be found to proceed from behind or immediately under, rather than from any part anterior to the rider.

The noise is produced by **spasm of the diaphragm.** The horse must, as the word "overmarked" seems to imply, have been pushed far beyond the point where man should have pulled the rein. A little distance farther, after the symptom is devoloped, will bring the animal to the ground; let the check, therefore, be immediately given; the rider should

dismount; the loins be covered with the gentleman's coat, if nothing better be at hand; he who has caused the misery is bound to make any sacrifice for its alleviation. The girths should be loosened, the bridle removed, and when time has passed for the system to become slightly tranquilized, the sufferer should be very gently led to the nearest shelter. So soon as it is under cover, the following drink should be administered, but time should be taken to give the medicine, as the condition of the horse forbids all haste :—

Sulphuric ether	Two ounces.
Tincture of camphor	Half an ounce.
Tincture of opium	One ounce.
Cold water or gruel	One pint.

This should be repeated every quarter of an hour, till four drinks are swallowed; then the intervals should be lengthened to half an hour, and, as the symptom decreases, the medicine ought to be administered at still longer periods, and ultimately, but gradually, withdrawn.

There are, however, other things to be done. When the animal is first brought in, procure five quiet assistants; give a leg-bandage each to four of the helpers, and a sponge, with a basin of cold water, to the fifth. Order the men to perform their ministration silently; the four are to bandage the four legs while the fifth sponges out the mouth, nose, eyes, and anus; this done, the body is to be superficially cleaned. Sweat is to be removed and dirt taken off; the ears pulled, and the head made comfortable; the tail and mane having been previously combed, a hood and body clothing should be put on.

All this should be well understood beforehand; while it is being accomplished not a word should be spoken; nothing is more soothing to an agitated system than perfect silence. Wet swabs should then be placed upon the feet, a pail of gruel suspended from the manger, and a man left to warn off all noisy strangers from the exterior of the building; for during spasm from overexertion perfect quietude is quite as essential as medicine.

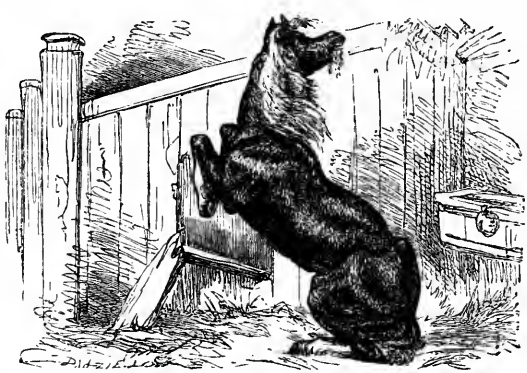
Spasm of the diaphragm, if taken in time, is not generally fatal; and no man, however determined a "Nimrod" he may be, is justified in proceeding after having recognized so mysterious a warning. The sound before alluded to must emphatically inform him all is not right with the animal on which he is seated. It is folly to urge that the horse enjoys the chase as much as the rider; no life would, for its own pleasure, run itself to a spasmodic exhaustion. Old hunters may have left the field to follow the hounds; the animals, however, obey only the impulse of education, and did what they imagined would gratify their superiors. The horse is given as a servant to man; the creature is obedient to its

destiny; to serve is its lot, to please is its reward. Body and soul it devotes to the heartless being who is assigned its appointed lord; it will spend its last breath in the gratification of its master; such affection surely merits better treatment than the quadruped generally receives.

When spasm of the diaphragm terminates fatally, approaching dissolution is announced by easily recognized signs. The pulse cannot be felt at the jaw; the heart only flutters; the feet are icy cold; a yellow discharge drains from the nostrils; the breath becomes fetid; the pupil of the eye enlarges; the horse wanders round and round its box; it soon sinks and perishes.

ACUTE GASTRITIS.

This most painful affliction is only known in the horse as the consequence of some poisonous substance being swallowed. Poisoning entire teams of valuable horses has followed the use of certain powders, these being mixed with the corn; the intention was to improve the personal appearace of the animals to which the drug was administered. Carters have a large faith in condition powders, and a distant belief in the *magic* of medicine; in their ignorance, they spend their hard-earned wages to procure the stuff, too often compounded of agents which never should be trusted in the hands of the uneducated. The men argue, if these powders, say one spoonful given each night, will make the horse bloom in a fortnight, two spoonfuls must do the same thing in a week; the spoonful



A HORSE SUFFERING FROM ACUTE GASTRITIS.

possibly contains the utmost limits of the dose; that quantity exceeded may endanger or destroy life. But ignorance is always impatient; it ever desires the speediest results; and if accident attends its eagerness, indignation should be visited upon those who put responsible trusts in

such keeping; upon the men who for gain sell poisonous drugs to the obviously uninformed.

Books and charts are published, explaining the various antidotes and tests to be employed for the detection and counteraction of the different poisons. Such authorities are of little service in the stable; the tests require care and time for their application; the symptoms are mostly so urgent as to permit no leisure for scientific inquiry. In an acute case, dependence must be placed on general principles, and fortune must be relied on to guide the result.

Certain poisons act instantaneously and without any warning sufficiently energetic to be interpreted, as the twigs or leaves of the yew-tree.

Other agents immediately establish the lesson which sometimes speedily kills, but more often produces consequences which will ultimately destroy life, though death may be some time before it occurs, as the mineral acids, etc.

The presence of particular kinds is announced only by violent disorder, as powerful diuretics and potent purgatives.

The symptoms, therefore, are not decided; the carter has his motives for silence, and the inability of the horse to vomit forbids the earliest announcement of deranged stomach. The time for antidotes has generally passed before attention is excited; to support the life, in the hope that it may survive the destroyer, is evidently the best thing which can, under such circumstance, be adopted. Chloroform, ether, and opium render the body insensible, and, by sparing the nervous system, certainly existence will be prolonged. Purgatives had better be withheld; they may already have been administered in enormous doses; fearful amounts of aloes destroy life without purgation being exhibited.

Against alkalies there does not exist the same objection; carbonate of magnesia, carbonate of soda or of potash may, in quantity, be mixed with gruel and horned down; both opium and ether may be blended with the drink. Should the pulse be low, a drachm of carbonate of ammonia may be added to each dose of the other ingredients. Should corrosive sublimate be in any degree suspected to be the agent employed, mix one dozen eggs with the other components; these will in no way detract from the operation of the drench.

The mixture should be given in as large quantities as the animal can be induced to swallow. The gruel should be quite cold, and one quart should constitute a dose. No bleeding should be permitted; the abstraction of blood promotes absorption; to prevent the absorption of the poison is the present endeavor. The following draught contains all that can be recommended, so long as ignorance of the actual poison it is

desired to counteract, exists. When the information is positive, of course Morton's Toxological Chart will be a far better guide than any observations the author has ability to offer.

Sulphuric ether and tincture of opium . . .	Of each three ounces.
Carbonate of magnesia, of soda or potash . .	Four ounces.
Gruel (quite cold)	One quart.

To these may be added, should the pulse be of a sinking character:—

Carbonate of ammonia	One drachm.

If corrosive sublimate is known to have caused the agony, one dozen raw eggs ought to be blended with the drench.

Use discretion in the administration; but repeat the drinks as often and as quickly as can be accomplished without adding to the distress of the horse. Regard the state of the animal, and, if weakness be present, take time when giving the drench. Should delirium be displayed, do not trust to the natural functions; employ Read's pump, with the horse catheter attached, and inject, with all dispatch, the whole quantity at once through the nostril.

HOW TO GIVE PHYSIC, WHEN THE USUAL MODE OF ITS EXHIBITION IS ATTENDED WITH DANGER.

The symptoms of poisoning are various; they are also modified by the strength upon which they act. The annexed list, however, contains the general appearances by which poisoning is announced, though the whole of the symptoms are never simultaneously exhibited: Loathing of all food; extreme thirst; redness of the nasal and conjunctival membranes; discharge of ropy saliva; frequent eructations, which smell pungently fetid; colic, rolling on the ground, pawing, striking at the abdomen, etc.; tucked-up flanks; heaving; panting; small, quick pulse; superpurgation; violent straining; passing of mucus in large quantities; protrusion and inflammation of the opening; glances at the abdomen; prostration of strength; convulsions; madness and death.

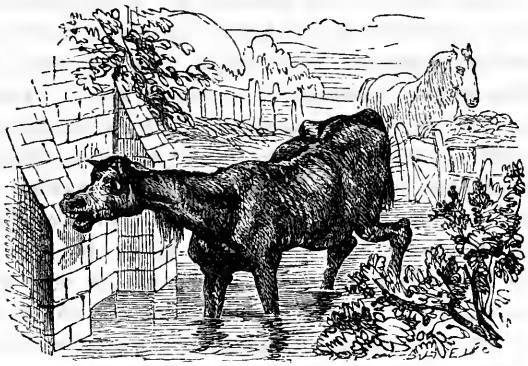
And now, whence is derived the source of this evil? It springs from the ignorance of the age. Is it not, at the present day, a common saying, that "intelligence goes begging, while handicraft finds employment?" Goodness, education, and industry cannot, at this time, insure the bread which will support existence. The cunning and the knowingness of the uninformed is much preferred. There is no mystery in the groom's office which might not be acquired in a week. The horse would fare better and be more safe in the custody of a person who possibly might sympathize with its solitude and appreciate its disposition. A higher class of servants would involve a higher rate of wages. But these might be paid, and notwithstanding, the horse proprietor be, in the long run, an evident gainer. To put the wounds inflicted on the sensibility of a feeling man out of the question, it is a heavy misfortune to look upon three or four valuable horses stretched out in death. Add to this, there are other accidents that ignorance, without malice, commits, and all of which must be paid for by the master. Then there are the petty frauds and understandings in which cunning delights, and all of which are indulged at the master's cost. On the other hand, there is the certainty, or all but certainty, that intelligence would perform its duty. The horses would thrive better and last longer when confided to proper custody. The losses, attendant upon ignorance, would be avoided,—not to mention the ease of mind secured by confidence in the probity of the person to whom authority is intrusted. What a mockery it is, to cry up education and then to shun the educated! A stimulus would be given to the ignorant, when it is recognized that the informed will be alone engaged to fill offices of trust.

CHRONIC GASTRITIS.

This affection is more general than is commonly understood. The horse being unable to vomit, of course the first positive proof of disordered stomach cannot be exhibited. Thus, little attention is generally paid to its digestion, when primarily diseased.

Chronic gastritis is usually said to be provoked by rearing upon sour or soft land; but well-bred animals are very often subject to the malady. The ailment is frequently first displayed at the period when the services are esteemed most valuable, or between the fifth and sixth years, long after the mode of rearing must have ceased to operate. The symptoms are various, and hardly ever alike. The stomach may affect the nervous symptom; then, its complications become difficult to disentangle. The affection is mostly declared by an irregularity of bowels and a capriciousness of appetite. The animal starts off violently purging. The looseness stops as suddenly as it commenced. Obstinate costiveness then

sets in, and each state can be traced to no obvious reason. The straw or litter may be eaten ravenously, but all the wholesome provender obstinately refused. The dung shows the condition of the appropriating functions; it crumbles upon the slightest force being imposed; it appears to consist of fibers not agglutinated together. Sometimes it is coated with mucus, and always smells abhorrently. A dry cough may be present; the visible membranes are pallid; the mouth feels cool; the breath is tainted; the eyes are sunken; the respiration is catching; the belly is pendulous; the anus is lax and prominent; the coat dry and ragged; while the body quickly becomes emaciated.



A HORSE WITH CHRONIC GASTRITIS INDULGING ITS MORBID APPETITE.

The slightest exertion produces a thick and copious sweat. The symptom, however, which is most remarkable, when the cleanly habits natural to the animal are considered, is the peculiarity of the appetite. The rack and manger are generally neglected; but every unnatural or offensive substance, within reach of the extended jaws, is devoured with avidity. Woodwork has largely disappeared. Soil and stones have been removed from the stomachs of creatures destroyed for incurable disease. Either of the substances last named, however, are usually spared, so long as a morsel of plaster, a portion of mortar or of brick, is within reach. Animals, when in the field, will leave the grass and enter any ditch to gnaw at bricks and mortar. When confined, they will, under the morbid influence of this affection, employ themselves for hours searching for a morsel of either among the straw.

The old custom of purging and bleeding for a case of this kind is positively injurious. It is better to administer bitters, alkalies, and sedatives;—the first, to amend the appetite; the second, to correct the acidity of the morbid secretion; the third, to destroy the uneasy sensation which provokes too many of the symptoms.

Powdered nux vomica	One scruple.
Carbonate of potash	One drachm.
Extract of belladonna	Half a drachm.
Extract of gentian and powdered quassia .	Of each a sufficiency.

Or,

Strychnia	Half a grain.
Bicarbonate of ammonia	One drachm.
Extract of belladonna	Half a drachm.
Sulphate of zinc	Half a drachm.
Extract of gentian and powdered quassia .	Of each a sufficiency.

Give, morning and night.

One of the above balls may be given daily. When their benefits seem exhausted, give, instead of a ball, half an ounce each of liquor arsenicalis, the same of tincture of ipecacuanha, with one ounce of muriated tincture of iron and of laudanum, in a pint of water. Also, damp the food and sprinkle magnesia freely upon it. Then, as the strength improves, introduce sulphuric ether, one ounce; water, one pint, daily; and ultimately change this last for a quart of good ale or stout.

Before concluding, there remains to point out the cause of this lamentable affection. Ignorance views each part of the body as distinct; it cannot see the various components are connected, and, in the mass, constitute one whole. Thus, medicine appears to the uninformed as thrown away, when internally administered for a skin disease. So it may to such persons appear strange how the air inhaled can disorder the digestion! To those better informed, however, it will only seem a natural consequence that impure atmosphere, inspired day and night, should impair the body's health. It will, with such people, be recognized as likely that the disorder should break forth when the frame is on the eve of being matured. The cause of indigestion is close and unhealthy stables. What loss will instruct mankind, that they cannot enslave life and treat it according to their convenience? Life has its natural rights: these cannot be disregarded—the requirements of breathing creatures must be fulfilled. The ability of the enslaver to use according to his pleasure, must not be selfishly regarded; else nature is outraged, and in its deprivation, pride learns the impossibility of forcing all things to conform with its inclinations.

BOTS.

No animal which has not been turned out to graze during the summer months can possibly be troubled with these parasites. Such annoyances form no light argument against the benefits accomplished by that which is in slang phrase termed "*Dr. Green.*" The appearance of the coat

and aspect of unthriftiness, after a run at grass, generally declare bots to be present within the body.

Uninformed persons are always desirous to possess some medicine which will destroy bots; they wonder that science lacks invention sufficient to compound such an agent. An anecdote may probably dispel such astonishment.

A patron of the Royal Veterinary College was once conducted by a pupil through the museum belonging to that establishment; the pair at last stood before the preparation of a horse's stomach, eaten through by, and also covered with, bots.

"God bless my soul!" exclaimed the visitor, after the nature of the specimen had been explained. "What a spectacle! What a myriad of tormentors! And have you no medicine to remove such nuisances? Can veterinary science discover nothing capable of destroying those parasites?"

"Why, sir," replied the student, "only look at that preparation. To my knowledge, it has been put up in spirits of wine, and corked air tight for two years. The creatures must be either very dead or very drunk by this time; yet, as you witness, they hold on. What sort of physic could accomplish more than is already effected by the spirits of wine and close confinement? I am at a loss to conjecture!"

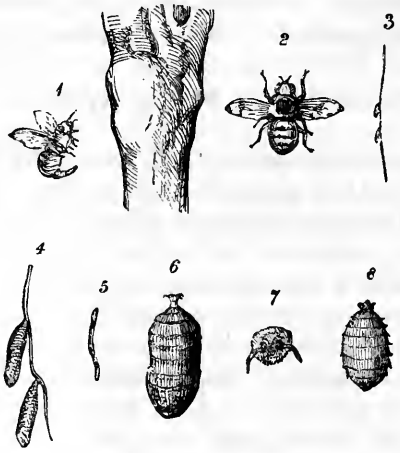
For the above, the author is indebted to the admirable lectures delivered by Professor Spooner; but the conclusion drawn by the student must be more than satisfactory. Bots, once within the stomach, must remain there till the following year, when, being matured, their hold of the lining membrane of the viscus will relax, and, in the form of a chrysalis, they are ejected from the system. No medicine can expedite the transformation. It has hitherto appeared easier to kill the horse than to remove the parasite.

To the investigation of Bracy Clark, Esq., V. S., the public owe all their knowledge of the fly whence the bot is derived. The common parent, according to the above authority, is the œstrus equi; and the author gladly avails himself of the original description by the above-named talented gentleman.

"ON THE ŒSTRUS EQUI, OR THE STOMACH BOT.

"When the female has been impregnated, and the eggs sufficiently matured, she seeks among the horses a subject for her purpose, and approaching him on the wing, she carries her body nearly upright in the air, and her tail, which is lengthened for the purpose, curved inward and upward: in this way she approaches the part where she designs to de-

posit the egg; and, suspending herself for a few seconds before it, suddenly darts upon it, and leaves the egg adhering to the hair: she hardly appears to settle, but merely touches the hair with the egg held out on the projected point of the abdomen. The egg is made to adhere by means of a glutinous liquor secreted with it. She then leaves the horse at a small distance, and prepares a second egg, and, poising herself before the part, deposits it in the same way. The liquor dries, and the egg becomes firmly glued to the hair: this is repeated by these flies till four or five hundred eggs are sometimes placed on one horse.



THE ŒSTRUS EQUI.

Copied from the Work on Bots, by Bracy Clark, Esq.

1. The female fly about to deposit an egg.
2. The male fly.
3. The egg, its natural size.
4. The egg, magnified.
5. The newly-hatched bot.
6. The bot full grown.
7. The head of a bot magnified.
8. The chrysalis.

"The skin of the horse is usually thrown into a tremulous motion on the touch of this insect, which merely arises from the very great irritability of the skin and cutaneous muscles at this season of the year, occasioned by the heat and continual teasing of the flies, till at length these muscles appear to act involuntarily on the slightest touch of any body whatever.

"The inside of the knee is the part on which these flies are most fond of depositing their eggs, and next to this on the side and back part of the shoulder, and less frequently on the extreme ends of the hairs of the mane. But it is a fact worthy of attention, that the fly does not place them promiscuously about the body, but constantly on those parts which

are most liable to be licked with the tongue; and the *ova*, therefore, are always scrupulously placed within its reach.

"The eggs thus deposited I at first supposed were loosened from the hairs by the moisture of the tongue, aided by its roughness, and were conveyed to the stomach, where they were hatched: but on more minute search I do not find this to be the case, or at least only by accident; for when they have remained on the hairs four or five days, they become ripe, after which time the slightest application of warmth and moisture is sufficient to bring forth in an instant the latent *larva*. At this time, if the tongue of the horse touches the egg, its *operculum* is thrown open, and a small active worm is produced, which readily adheres to the moist surface of the tongue, and is from thence conveyed with the food to the stomach.

"At its first hatching it is, as we have observed, a small active worm, long in proportion to its thickness, but as its growth advances, it becomes proportionably thicker and broader, and beset with bristles.

"They are very frequent in horses that have been at grass, and are in general found adhering to the white insensible tissue or coat of the stomach.

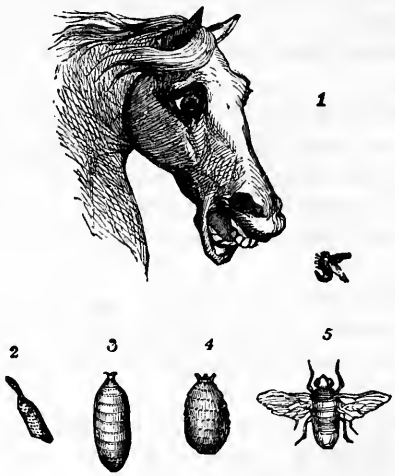
"They usually hang in dense clusters to this white cuticular lining of the stomach, and maintain their hold by means of two dark-brown hooks, between which a longitudinal slit or fissure is seen, which is the mouth of the larva. When removed from the stomach by the fingers by a sudden jerk, so as not to injure them, they will, if fresh and healthy, attach themselves to any loose membrane, and even to the skin of the hand. For this purpose they sheath or draw back the hooks almost entirely within the skin, till the two points come close to each other; they then present them to the membrane, and keeping them parallel till it is pierced through, they expand them in a lateral direction, and afterward, by bringing the points downward toward themselves, they include a sufficient piece of the membrane, to remain firmly fixed for any length of time as at anchor, without requiring any further exertion.

"These bots, as is also the case with two or three other species, pass the autumn, winter, and spring months in the stomach, and arrive about the commencement or middle of the summer at their full growth, requiring a twelvemonth fully to complete their structure."

"ON THE ŒSTRUS HEMORRHOIDALIS, OR FUNDAMENT BOT.

"The part chosen by this insect for this purpose is the lips of the horse, which is very distressing to the animal from the excessive titillation it occasions; for he immediately after rubs his mouth against the

ground, his fore legs, or sometimes against a tree, with great emotion; till the animal at length finding this mode of defense insufficient, enraged he quits the spot, and endeavors to avoid it by galloping away to a distant part of the field; and if the fly still continues to follow and tease him, his last resource is in the water, where the œstrus never is observed to pursue him. These flies appear sometimes to hide themselves in the grass; and as the horse stoops to graze, they dart on the mouth or lips, and are always observed to poise themselves during a few seconds in the air, while the egg is preparing on the extended point of the abdomen.



THE ŒSTRUS HEMORRHOIDALIS.

Copied from the Work by Bracy Clark, Esq.

1. The female fly about to deposit an egg.
2. The egg, magnified.
3. The bot.
4. The chrysalis.
5. The male fly.

"When several of these flies are confined in a close place, they have a particularly strong, musty smell; and I have observed both sheep and horses, when teased by them, to look into the grass and smell it very anxiously; and if they by these means discover the fly, they immediately turn aside and hasten to a distant part of the field.

"I once saw in a meadow or field upon the cliffs at Margate, a fly of this sort teasing a horse that was confined to a small space by a spike stuck in the ground, to which a cord was tied. He could not get away from its attack, and became quite furious, for in kicking at the fly with his fore foot, which he did vehemently, he often struck the bone of the lower jaw, creating excessive pain; for in that direction while grazing, the fly comes to the beard of the lower lip.

"The eggs of this species are difficult to be seen upon the horse's skin or beard, owing to the agitation of the beast, and from the color of the egg being dark like that of the skin of the horse. The animal has been generally too impatient, while undergoing this operation, to let me examine them very well. I ascertained, however, its form by pressing one of these eggs from the abdomen.

"The larva or grub of this species inhabits the stomach as the former, generally adhering to the white lining, and is disposed promiscuously in dense clusters, after the same manner; they may, however, be distinguished from them by being in general smaller and longer in proportion to their bulk.

"The larva of this species may be obtained from almost any horse that has been much the preceding year at grass, and exposed to these flies, and will be found during the summer months sticking more or less within the verge or opening of the anus, adhering to its soft lining, and producing considerable irritation and uneasiness. Indeed, I once well remember being on a tour of pleasure in the Isle of Wight, and experiencing much annoyance from these larvæ. The little horse I had hired for the journey became so lazy and unwilling to go on, and moved so awkwardly, that I could not keep pace with my company, and I was at a loss how to proceed; but on casually taking up the tail, I discovered three or four of these insects hanging to the rectum, and their removal instantly proved a cure."

For more ample particulars, the reader is referred to the book itself, which is entitled "An Essay on Bots in the Horse and other Animals." It will, in the pages of the original work, be seen that Mr. Clark more than suspected the existence of other species of the same family; but, as no positive knowledge has yet been gained, we must await patiently the inquiries of those to whom this branch of science belongs.

However, the writer must dissent to Mr. Clark's conclusion, that "bots are harmless, if not beneficial." How far does such a supposition agree with the perforated stomach, preserved at the Royal Veterinary College? How far does it accord with the ragged coat and unthrifty aspect by which the presence of the parasites is ascertained? How, when crediting such a conjecture, are we to account for the horror exhibited by the horse at the approach of the fly; and how can we interpret Mr. Clark's experience in the Isle of Wight?

Bots are known to be injurious; healthy bodies are seldom troubled with parasites. The parched and innutritious grass of the summer's heat cannot support the life accustomed to artificially saved and carefully prepared food. It is the meanness of the master which dooms the slave

to starvation; he begrudges the keep of the animal, therefore, he disguises the ugliness of his feeling under a pretense of giving the horse a month's freedom and its natural food! In spring, when the herbage is young, one hour night and morning might be excused; but those hours must be before the flies are up, and after these pests are asleep. In the height of summer, when the grass has perished and the ground is hard, the health soon yields to constant exposure and to unwholesome food. The flies torment the animal, and from the shed it is often driven by its companions in the field. A large portion of the accidents which horses are liable to, occur while out at grass; many an animal is released from the stable blooming and valuable; it is, at the expiration of the month, brought home looking ragged, with a huge belly, and is never fit for a day's service subsequently. If the matter is to be regarded only in a money point of view, it would have been a saving to the owner to have paid a twelvemonth's keep, rather than lose his servant, and notwithstanding, afterward have to pay for food and treatment till experience had instructed him in the inutility of expecting restoration. But when the matter is considered in a moral sense, what right has that individual who has, for his own pleasure, accustomed a life to a particular form of diet, at his will, or for his convenience, to snatch the food from the creature and drive it forth to gnaw at stalks which had shed their seeds, and to be exposed to all the variations of the season? It is no excuse to talk about there being no work to be done while the master is at the sea-side; the devotion of a life should have earned a brief support, and the gentleman whose avarice thinks otherwise has no just reason to complain of the punishment which the indulgence of his greed will probably insure.

CHRONIC HEPATITIS.

Acute hepatitis is unknown among horses in England. The late Professor Sewell thought he had witnessed one case. Other people know they have not seen a single instance of such a disease.

Chronic hepatitis is peculiar to maturity. Brewers' horses—huge animals, fattened upon refuse of the mash-tub, and which are paraded, in all the pride of obesity, drawing one small cask over the stones of London—are often attacked by this malady. All horses which consume much provender, without absolute regard to work, are exposed to it. Gentlemen's carriage horses are very liable to it. A private vehicle is started, and at first much used; but after a time it is equally neglected. The individual does not want the carriage to-day, when the coachman comes round "for orders." Neither is it required on the next occasion. Often a week passes without the fashionable plaything being uncovered.

The animals, during that time, depend on the groom for exercise. The coachman may be fond of his horses, and, in his ignorance, may think they cannot have too much rest, or himself too little work. Let the master neglect his duty, and the servant soon follows the example.

The word "duty" was employed in the last sentence. It is of an unpleasant signification, and was used in its harshest sense. Kings owe a duty to their subjects; the rich owe a duty to the poor. All authority has some obligation connected with it. There is nothing like perfect freedom in this world of dependence. Man is the king over living things. He may claim his rights, but he at the same time must adopt the weight of his office: he cannot assume the one and discard the other. A monarch is invested with dominion and authority over men; but the stability of the throne is dependent upon the righteousness of the ruler. If he who wears the crown abuses his trust, he may possess "a right divine," but he is speedily without subjects. So, if man is unjust to the creatures ever which he is placed, nature snatches them from his grasp; and he may be invested with every power, but he soon wants animals upon which to exercise it.

View the matter in another light, as an affair only of worldly prudence. Knives, formed of the hardest steel, if purchased and put away, in a short time are worthless, because of rust. A house wears faster when untenanted than when properly inhabited.

A horse cannot remain for days in the stable and retain its condition. The carriage proprietor has not only to find food, but he is equally bound to support the health of his animals, or the service for which he bargained will be rudely terminated. Too many do not think of this. Too many take out the carriage to-day, only because it accords with their convenience. All, however, complain of the uncertainty which appertains to horse-flesh. The frame of the horse is stronger than machinery; but it cannot resist the willfulness of human misrule. Let that man, whose stable troubles him, question his own conduct. Let him examine the house in which he has thrust life. Let him see to the servants he has engaged, and to the food for which he pays; and after all, let him inquire into his own behavior: the error will be fonnd, not in the creatures over which he exercises dominion, but in those who are invested with authority.

If people will start carriages, the vehicle must be taken out every day, let the weather freeze, rain, or shine. The hard earth of sunshine is frequently more injurious to the feet than either cold or wet are to the body. The lady, when out visiting, has more than her own pleasure to consult; for all horses fed on the best and underworked, or retained standing long before the street door, are exposed to chronic hepatitis.

The gentleman's delight is almost as liable as the brewer's pride. Even moderate food and too little work will engender the disease. The author, when he quitted the veterinary college, left in that establishment an Arab, which, from a year's stagnation, was obviously thus disordered.

The primary symptoms are not well marked, and do not, generally, attract attention. The animal is dull and averse to move. It appears to have imbibed a fondness for the inactivity to which it has been accustomed. The appetite is either nice, altogether lost, or unscrupulously ravenous; the bowels are constipated; the dung is black, and coated with bilious-looking mucus; it is friable, and imperfectly digested. If a white paper be pressed upon it, a greenish-yellow stain is imparted. The urine is scanty, and, commonly, highly colored; while the pulse has a heavy beat, as though treacle, instead of blood, circulated within the artery.

The signs which indicate a confirmation of the disorder are: the mouth feels cold; the nasal membranes are unnaturally pallid; the whites of the eyes are ghastly, displaying a yellow tinge; sometimes the horse looks at the right side; usually, it lies upon the left ribs, but never for any long time; tenderness may be exhibited, if the right side be pressed upon. However, the last symptom is rarely present, and lameness in either fore leg is seldom witnessed.

The disease is, for the most part, obscure, and is best recognized when medicine has become powerless. If early detected, a limited, but sufficient supply of nutritious food; plenty of, but not exhausting labor, with a long course of iodine in alterative doses, are calculated to work some beneficial change.

Iodide of potassium	Two ounces.
Liquor potassæ	One quart.

Mix, and give two tablespoonfuls night and morning, in a pint of water.

Commonly, however, bleeding from the liver is the earliest recognized indication of disease. Then the horse, with depressed head, is found standing before untouched food; often it staggers; sometimes it supports itself against the partition to the stall; it always maintains the erect position with extreme difficulty; the pupil of the eyes are enlarged; if the hand be moved before the sight, the lid does not close; the vision is lost; the pupils are much dilated; the breath, denoting weakness, is short and catching; the jaw is pulseless, and the heart flutters; the visible membranes are deathly; and the bilious nature of the disorder is, in these last parts, apparent. Should the head, only for a minute, be raised, the animal threatens to fall.

The first attack is seldom fatal, and possibly might, by proper usage, be recovered from. The bleeding, then, is from the substance of the

gland, and does not generally burst Glisson's capsule, or the first and fibrous covering of the liver. Glisson's capsule, however, is, by the pressure of fluid, bulged out. The hemorrhage stretches the peritoneum, which is the second or last envelope; and nature, striving to repair the injury, causes the serous investment to inflame,—to become white, opaque, considerably thicker, and altogether stronger than in its normal condition.

THE HEAD OF A HORSE SUFFERING FROM INTERNAL HEMORRHAGE.

THE TEST FOR HEMORRHAGE FROM THE LIVER.

There may be an indefinite number of attacks; or the horse, possibly, may succumb to the first assault. Commonly, there are several fits of the same character. Treatment is generally adopted. A dose of aloes is given, though with what intention the author is not aware. Quiet is enjoined; and styptics, as sugar of lead, alum, etc., are administered; and the horse, commonly, under such treatment, seems to recover.

It is, however, difficult to change a fixed habit, or to perceive the reason for an alteration after all danger has disappeared. The gentleman again indulges his inclinations. The coachman, to keep up his horse's flesh, fills the manger; the master very rarely orders the carriage; now he can ride, walking is preferred for his own exercise. Soon, a second fit takes place; this time, Glisson's capsule usually yields; but the thickened peritoneum, although pushed farther out, still resists, and now remains the single stay between human perversity and certain death.

With recovery, the former custom is again resumed; the man chooses to think a sick horse must require support; the master pleases to imagine rest must be beneficial to an animal which has been seriously ill. Another fit ensues; no one is much alarmed this time. The people have become accustomed to the sort of thing; men soon grow used to other's

agony. However, something is now present which has not been witnessed before; that circumstance rather disturbs the reigning equanimity; the horse is evidently much disposed to quietude, but some hidden cause excites it; it rolls, flings itself down, struggles up again, paws with the fore feet, kicks with the hind legs at the belly, and breathes with much more difficulty than formerly.

Often it lies upon the back for some minutes; the result, when such symptoms are observed, generally is invariable. After death, the abdomen is opened; the cavity is full of black blood, which, commonly, does not coagulate; though, should death occur upon the first attack, dark clots may be found among the intestines.

With regard to the treatment, which the author approves, it consists of the drink previously recommended; sufficient but nutritious food, and, above all things, abundant exercise. The horse should also be removed from the heated stable and allowed a large, roomy, loose box. Purgative medicine is too debilitating for such a disease; but the bowels should be regulated by green meat or by bran mashes, when such agents are required.

CRIB-BITING.

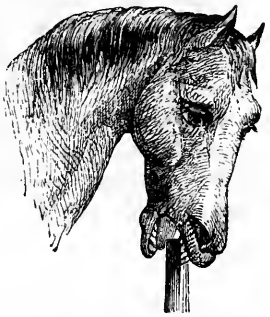
Nothing more forcibly illustrates the ignorance by which the horse is surrounded, than the manner any trivial but visible fact is magnified into vast and mysterious importance. The untutored always have active imaginations; thus, what is at worst, in the author's opinion, the declaration of acidity within the stomach, is by most horsemen dreaded more than an actual disease.

Cribbing is very common among horses which have been long inhabitants of the stable; the many hours of stagnation the domesticated horse is doomed to pass, may induce the animal readily to seize upon any solitary pastime. Or the perpetual consumption of oats and hay may disarrange the digestion, which, experience teaches, is in ourselves much benefited by a moderate change of diet. Or, the constant inhalation of close and impure air, such as will taint the clothes of the groom, who is much exposed to it, may disorder that part of the body which is the most sympathetic of the entire frame.

Adopt which of these theories the reader may be inclined to, all of them can be brought to bear upon the horse so affected. That cribbing is a habit is seemingly proved by the young horse, stalled next to an old cribber, soon acquiring the custom. That cribbing is provoked by idleness, appears to be in some measure confirmed by the horse never exhibiting the peculiarity before it has been handled and become an occupant of the stable. That it arises from acrimony, induced by the

food, is apparently shown by the colt, while at grass, never displaying the symptom. That it will be witnessed in the old horse, when turned out for a month's run at grass, establishes nothing. The temporary visitor to the field may often be seen galloping toward some gate, which, having reached, the horse there commences a long game at crib-biting. This circumstance can settle nothing, except that the digestion is chronically deranged—the stomach, when thus affected, being peculiarly retentive of its morbid condition.

Crib-biting consists in resting the upper incisor teeth against any solid or firm substance; a fixed point is thus gained, and, after much effort, a small portion of gas is eructated. The perpetual emissions of heated air is, in man, one of the symptoms attendant on indigestion; and the act, in the horse, appears to be impelled by something stronger than habit; since the animal will leave the most tempting provender for its indulgence.



A HORSE IN THE ACT OF CRIB-BITING.

The premonitory symptoms, moreover, seem to declare heartburn to be the cause of this much-dreaded indulgence. The custom is always preceded by licking of the manger. If on that there should be iron, or should any part be cooler than the rest, to that particular spot attention will be paid. The licking of cold substances is a symptom of disordered stomach with other dumb creatures. It is prominently displayed by the dog when the viscus is inflamed. But crib-biting may be prevented, if attacked during the premonitory stage. Any substance, which acts as a stimulant to the stomach, is said to be beneficial. Salt is known as an almost necessary condiment, aiding the healthfulness of human food. The deprivation of salt was an old criminal punishment among the Dutch; and a lump of rock-salt placed in the manger will often enable the horse's digestion to recover its lost tone.

Crib-biting has, in submission to general opinion, been alluded to as a habit, learned within the stable. But may not that which man designates a habit in a dumb creature, be no more than the influence of one atmosphere acting similiarly on two bodies, both caged in the same stable? The air is much more than inhaled. A large quantity is swallowed with the saliva. No slight amount is deglutated with the masticated food. The water is generally kept in the stable some hours before the horses are permitted to imbibe it. Water has a large affinity for atmosphere. Air, therefore, enters largely into the body, besides being continually

absorbed by the blood during respiration. And moreover, is it not strange that all horses, when indulging an imitative faculty, should always precede the display by the same licking of the manger, which assuredly is not learned, because that stage has passed before the young horse is placed near the one it is supposed to imitate? Is it not also surprising, that applying the tongue to cool substances should, in other domesticated but dumb creatures, be a symptom of derangement of the stomach?

When the horse cribs, the manger is not bitten. The upper incisors are merely placed against the wood-work, and, from this fixed point, the animal strains backward the body; thereby, the muscles of the neck are the more readily excited, and a small portion of air, accompanied by a slight sound, is forced up a canal which does not of itself favor regurgitation. When the inability to vomit is considered, the necessity of some such stratagem, to relieve the stomach of its burning acidity, must at once be admitted. We are still further reconciled to the necessity which prompts the action, when the ease afforded to human dyspeptic subjects, by the expulsion of "the wind," is properly regarded.

To relieve crib-biting, first attend to the atmosphere of the stables; render that pure by ample ventilation. Place a lump of rock-salt in the manger; should that not effect a cure, add to it a large piece of chalk; should these be unavailing, always damp the food, and, at each time of feeding, sprinkle magnesia upon it, and mingle a large handful of ground oak-bark with each feed of corn. Should none of these measures prove beneficial, treat the case as one of **chronic indigestion** or **gastritis.**

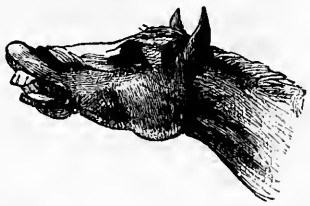
Let every reader, however, remember dyspepsia is far easier acquired than eradicated or even relieved; still, the vast majority of the fears entertained concerning crib-biting are perfectly groundless. The habit, certainly, does not round the edges of the front teeth; neither does it predispose to spasm or to flatulent colic; a horse that cribs may have either diseases; so, also, do many animals which are free from the peculiarity. Cribbing can be no recommendation to a purchaser, although the writer cannot honestly point to the direction in which it is detrimental to the usefulness. The late Mr. Sewell had a brown horse: this creature was eighteen years old, and an inveterate cribber; yet, it would trot nine miles an hour, for its own pace, without ever needing the whip. More than this, no horse master should require; but let those who entertain a horror of crib-biting, pay extra attention to the means by which the indulgence can be prevented.

CHAPTER VIII.

THE ABDOMEN—ITS ACCIDENTS AND ITS DISEASES.

ENTERITIS.

THE nose turned forcibly upward in horses is only expressive of general abdominal disease. The author has witnessed this symptom during the earliest stage of **enteritis.** It is frequently exhibited when no disturbance calling for treatment is known to be present, or can be subsequently observed. Still, because it is sometimes the earliest warning of intestinal disorder, all horses displaying such a peculiarity should receive pointed attention.



THE NOSE STRAINED VIOLENTLY UPWARD IS A GENERAL SYMPTOM OF ABDOMINAL IRRITATION.

Enteritis is a fearful disease, creating the greatest possible agony. Aged horses are specially exposed to this scourge, which can rage with ungovernable fury from the commencement, and consume the life in eight hours. Its causes, unfortunately, are in a great measure purely conjectural; such as drinking cold water, etc. etc.

These incentives are formally recounted in books; but surely something is wanted to complete the catalogue. If all the animals exposed to the operation of such provocatives were to have enteritis, two-thirds of the horses inhabiting Great Britain would be dead by to-morrow morning. The principal thing, therefore, is the predisposition; incline toward a particular malady, and any triviality may start up the disease; yet this predisposition we at present are too ignorant to recognize.

A severe fit of colic, long continued, may end in enteritis. This is well known; yet it was not the colic which induced enteritis; but the real cause was that which originated the first affection. The predisposition must be present before the bowels would exhibit that inflammation into which the colic merged; the injudicious and cruel treatment most horses receive from those to whose service the life is devoted, may probably be accused as the root of all these evils; disease is the loudest proof that the life is stinted in some essential particular. The same food is placed before all horses; one animal will, however, purge upon

exertion; labor, on the other hand, may constipate the fellow occupant of the same stable. When the same effect has produced such opposite causes, all the bodies cannot be alike; an old proverb asserts "that which is one man's food is another man's poison." The diet which supports one animal in health may loosen or constringe its companion; yet we are too ignorant to practically use such distinctions.

Again, there is no practice more general than to load the rack and pile the manger after any uncommon toil has been endured. The practice may originate in the best intentions; but no intention can convert that which is evil into a positive good. The wretched animal is tempted to cram the stomach when excessive labor has weakened the vital functions. Horses which are brought home late at night do not usually receive much notice; the grooms are sleepy and eager for their beds. The dressing of the animal, however much such attention might conduce to health, is consequently left to the following morning. Rapid motion quickens the circulation; the blood is sent to the skin, and copious perspiration is the result. However warm the stable may be, warmth only promotes evaporation; cold of the lowest degree results from evaporation; the consequence is, the body of the quadruped speedily shivers; the blood is repelled to the internal organs, the bowels are prepared for inflammation, and thus enteritis often follows upon the midnight return from a long journey.

Moreover, when the frame is exhausted, rest is far more essential than food; the nourishment then should be very light, and such as can be quickly swallowed. A quart of thick flour or of oatmeal gruel should be first offered after the return. When the cleansing of the animal's body is finished, another quart should be given; these will occupy little time in being put out of sight, and the administration need not interfere with the repose which is desired. The gruel being swallowed, a feed of crushed and scalded oats may be placed in the manger; no hay should be allowed; the wish is to sustain a debilitated body, not to blow out an idle stomach. Then the creature should, after being fully clothed, be left to itself, and no more nourishment be provided for that night. The danger of introducing substances into a stomach dead to its functions would thus be avoided; nothing likely to irritate or to operate as foreign bodies upon the bowels would be set before the debilitated horse. Besides, the groom would be obliged to remain up for some space, and, as a good servant always finds time hang heavy when without occupation, the animal is more likely to be dressed before the man retires. Moreover, the clothes would prevent the cold which ensues upon unchecked evaporation.

Constipation, if permitted to exist for any period, is always danger-

ous; hardened feces are one of the surest causes of enteritis. Disregarding this fact, the endeavor of the immediate age seems to be to keep horses cheap. Strange mixtures are now substituted for wholesome corn, in which the grain and husk are mingled, the one supporting the strength, the other stimulating the bowels. It is folly to seek for profit from a life, and to stint the nourishment which feeds the strength, or to view cheapness as desirable where the service is unlimited. It is wicked to imprison a living being and then to regard it only in connection with our conveniences; "much care and no spare" is a good stable proverb. The food makes the work; omnibus masters know this fact; their horses perform hard work and eat of the best, however abominably the generality of these slaves were once lodged. The home of a London horse is mostly a miserable hole: heated only by fermentation; too often undrained; nearly always without sufficient ventilation. The stall of such a building is large enough for the animal to stand in and not wide enough for the recumbent frame to rest in; the roof is low, and the refuse of the body is piled near the entrance. When will man learn that his interest is best consulted by the proper observances due to vitality in every form? A horse cannot be treated as though it were a jug; it cannot be placed upon a shelf and taken down when required. The functions which nature has placed within a beautiful and exquisitely framed body will, if thus regarded, soon become deranged. Sickness will soon cost more money than health would have required for its sustainment; and, in the end, he who strives to blend the animate and the inanimate will speedily find himself possessed only of the latter description of property.

The predisposing cause may, in most instances, be difficult to discover; but the premonitory symptoms of enteritis are well marked. The animal is dull and heavy. It may not notice aught about it, or it picks at its food; repeated and violent shivering fits usher in the attack. When the above characteristic signs are observed, at once take away all hay and corn. Bandage the legs, which will be cold; clothe the body, and, if already dressed, loosen the surcingle. Litter well the stall or remove the horse to a loose box; give two or three drinks, one every quarter of an hour, containing sulphuric ether and laudanum, of each one ounce; water, half a pint; and observe the animal without disturbing it. These symptoms are, however, generally unseen, because the groom is between the bedclothes while his charge is suffering.

The primary symptoms of decided enteritis are termed "**colic**" or "**fret.**" Such words simply represent bellyache; but harm is done and valuable time lost, if the terms of the stable are accepted in any absolute signification. Grooms always have some invaluable nostrum hoarded

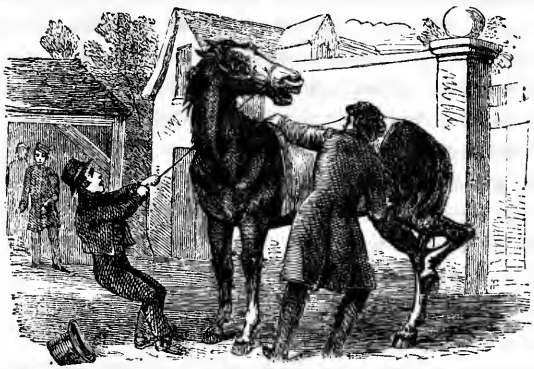
up; such people are proud of and confident in their secret knowledge; they will lie rather than communicate the contents of their charm. With the best hopes the foolish servant will waste precious moments in useless expectation, and watch for results from an injurious or worthless potion till the time when curative measures could have been effective has passed. Never permit the men who clean the horses also to administer to their diseases; the poor fellows may mean well, but they can have no knowledge which, in the presence of danger, can be beneficial.

The primary symptom, to an uninformed observer, may simply announce a mild fit of gripes. When the shivering has subsided, the horse rolls, plunges, kicks, etc. etc., as he does in spasmodic colic. The struggles, however, are less abandoned and far more mannered in inflammation of the bowels, than in genuine spasm. The pain, moreover, which in enteritis accompanies all movements of the diaphragm, throws the labor of respiration upon the walls of the thorax. The ribs can only partially dilate the lungs; nature endeavors by quickening the motion to supply the deficiency. In colic, the breathing is at first only excited by the exertion; it is deep and full. At the commencement of spasm, the mouth is moist and in temperature natural; during enteritis, the breathing is very short and the mouth is always hot and dry.

THE TEST FOR ENTERITIS AT THE COMMENCEMENT OF THE ATTACK.

The pulse is disturbed only as colic progresses; in enteritis it is quick, hard, and wiry, before the disorder is fully established. The term "wiry" well represents the kind of pulse which accompanies enteritis. If a thin metallic cord were to strike the finger ends somewhat gently, and about seventy times in a minute, it would impart the same sensation as is communicated by the beat of the artery during inflammation of the bowels. Besides, pressure in colic seems to ease the anguish; in enteritis, the horse often cannot bear to have the abdomen touched. The last symptom, however, is not always present, neither is there one, save those characteristic of general inflammation, which is invariably to be observed. In abdominal disease, so many organs are influenced that everything becomes, in a vast degree, mystery and confusion. Notwithstanding this, pressure, in enteritis, never affords relief; sometimes, however, the hand placed upon the belly will elicit the most energetic response. The horse will kick with the hind leg, turn round the head, and violently snap the jaws together. Then he who applied so rude a test must stand out of the reach of the hind foot, at the same time watching the head. Thus all

danger is readily avoided; because the ears, the eyes, and nostrils of the horse express its intentions before these are carried into effect.



THE TEST OF PRESSURE TO THE ABDOMEN FOR ENTERITIS.

All the tests will, however, not warrant certainty. The heat and dryness of the mouth may proceed from bodily exhaustion; the pulse, though highly suspicious, may merely denote general disturbance rather than declare the particular locality of a disorder. The peculiarity of the breathing may only express temporary faintness; the resistance to pressure is common to many horses while in health, and the restrained method of the plunges may be consequent upon the absence of any incitive to greater energy; still, when all are put together, they imply a great deal. Faintness and exhaustion are not to be reconciled with a hard pulse; the heat of the mouth and the resistance to pressure, especially when united to the voluntary restraint imposed upon the motion, certainly warrant a strong inference, and sanction no belief that colic is the sufferer's complaint. Happily, however, there remains a mode of assuring the most hesitating individual. The coat must be pulled off, the shirt-sleeves rolled up, and the arm be well greased or thoroughly soaped. About this there must be no false delicacy: in human surgery and in veterinary practice many things have to be surmounted which do not read well when described in cold print. In this instance, the intention is to relieve a suffering life; the motive will elevate the act. The fingers of the right hand are to be compressed, while the left hand raises the tail; the position is on the left side, as near

A CERTAIN TEST FOR ENTERITIS.

to the feet as may be possible. Being there, the points of the compressed fingers are brought to bear upon the center of the anus; gentle and equable pressure is maintained until the resistance of the sphincter muscle is tired out; even then, no haste is warranted. Upon the hand penetrating the body, a cavity is entered; here there is generally some dung, the removal of which constitutes what is called "back-raking." In enteritis, the excrement is hard, dry, offensive, in small and dark lumps, upon the surface of which lie streaks of white mucus. This being done, the arm must be regreased or again moistened with water, and the hand gradually advanced to ascertain the temperature of the intestines. If the health be undisturbed, the operator will be conscious only of a genial glow; should inflammation exist, the augmentation of the natural heat will be most decided.

All is then certainty; no further doubt is justifiable, and no additional symptom need be looked for. The nature of the case is determined, and should it be enteritis, every moment is indeed precious. Firstly, neither bleed nor purge. A particular kind of venesection, however, is allowed. Extract one quart of blood, and inject into the vein one pint of blood-warm water; a profuse purgation and perspiration almost immediately follows the disappearance of the fluid. Much uncertainty is thus spared; and two conditions, both favorable to recovery, are induced.

For this operation a quart syringe should be employed; a fine curved nozzle should be affixed to it for the convenience of insertion down the vein; the tube connected with the handle should be marked to show when a pint has been forced out of the instrument.

THE SYRINGE TO INJECT INTO THE JUGULAR VEIN DURING ENTERITIS.

The reason for using a larger and a less handy machine than seems absolutely necessary to perform a delicate operation is, because nearly all syringes suck up a portion of air, which, when the instrument is almost empty, comes forth. Now breath or atmosphere, or gas of any kind injected into a living vessel, speedily destroys life. To prevent so fearful an accident the enlarged capacity of the syringe is recommended.

The water being injected, should the pulse regain its inflammatory character, mingle half a drachm of aconite root, in powder, with every subsequent antispasmodic draught. The ethereal drenches must be continued, because pain of the intestines is always obstinate, and we cannot be certain how far spasm may cause the agony, seeing that a form of colic always attends on enteritis.

Aconite root, in powder	Half a drachm.
Sulphuric ether	Three ounces.
Laudanum	Three ounces.
Extract of belladonna	One drachm.
(Rubbed down in water)	One pint and a half.

These drinks should be administered as the pain, pulse, and the general appearance seem to demand them; they may be employed every quarter of an hour if requisite. When the pulse is quiet, withdraw the aconite; should the pain subside, remove the belladonna. The ether and laudanum may be diminished as the horse appears to be more comfortable.

Should the symptoms denote a dead, lingering pain in the abdomen, after the administration of the eighth drink, procure some strong liquor ammonia. Dilute this with six times its bulk of cold water. Saturate a stout cloth with the dilution; lay the cloth upon several folds of rug;

THE APPLICATION OF AN AMMONIACAL BLISTER IN ENTERITIS.

obtain four resolute men with not very sensitive eyes or noses, and let them hold the cloth close to the animal's abdomen.

The action of the ammonia must be from time to time observed. It is a most powerful agent; in certain states it can blister in ten minutes; in other conditions, it requires half an hour to take that effect. It is very uncertain; but, if held too long, it may dissolve the skin and leave behind a fearful sore, which will establish a lasting blemish. He who employs it will understand he is using that which must not be abused. The removal of the cloth allows the ammonia to evaporate, and, consequently, at any moment effectually checks all further action.

When all is accomplished, should the progress of the disease be effectually stayed, but the cure not be complete, sprinkle on the tongue the following powder every second hour:—

Calomel	Half a drachm.
Opium	One drachm.

But stop all the other medicine as soon as the subsidence of the symptoms will permit. The food is now of all importance: bran, in enteritis, is positive poison; mashes are not to be thought of; linseed is too feeding for an inflammatory subject. The same objection may be taken to gruel; hay tea, or pails of boiling water poured upon a pound of flour, must sustain the body for the first day after recovery; on the next day, a feed of boiled roots may be introduced, but not the whole quantity at once; that must be divided into three meals. Then the amount may be doubled, and thus the full bulk of provender be by degrees attained; afterward a few crushed and scalded oats may be mixed with the rest at each meal; but it should be some time before hay is permitted to irritate and distend the lately inflamed surfaces.

Enteritis is a fearful disorder; he who has witnessed one death by that terrible malady should have received an awful rebuke. The *post-mortem* examination best describes the violence of the affection. The intestines, generally the large intestines, are black and swollen; often in color they approach to a green. Their structure is destroyed; they tear upon a touch, and are so loaded with inflamed blood that one division of the bowels may form no inconsiderable burden for a strong man.

The above directions, the intelligent reader will fully comprehend, are not pronounced in any absolute sense. No two cases of any violent disorder are precisely similar; the forms, therefore, prescribed in these pages admit of variations. They are given only as suited to the generality of attacks; they may be lessened or augmented, as circumstances demand or as discretion dictates. It would be as easy to make a shoe which should fit all feet, as to name medicines or point out the quantities which should be adapted to all maladies.

ACUTE DYSENTERY.

Diarrhœa may be banished from the list of diseases to which horseflesh is liable. Certain animals will purge during work; others will scour upon the smallest change of diet; such peculiarities, however, mostly check themselves; they demand very slight or no remedial treatment. Unlike diarrhœa in the human subject, they never terminate in death; but dysentery is as violent as diarrhœa is mild. The length and size of the intestines render any disease within them a very serious affair. There are two kinds of dysentery, the acute and the chronic; the acute form of disease will constitute the subject of the present article.

The cause of **acute dysentery** is always some acrid substance taken into the stomach—generally aloes, combined with some preparation of croton; other substances will, however, induce an inflammatory purgation. Such a result may ensue upon the injudicious use of arsenic, corrosive sublimate, tartar emetic, blue-stone, etc. etc. Many of these substances will be eaten if mixed with the corn—the instinct which protects the lives of other animals being destroyed in the horse by ages of domestication. Others may be ignorantly administered with the very best of intention.

The symptoms often are obscure at the commencement; there is abdominal pain; so there is in most intestinal disorders. The agony may readily be mistaken for the pangs attendant on spasmodic colic. On other occasions, the suffering may be slight, not even sufficient at first to destroy the appetite. No poison acts upon two bodies in precisely the same manner; violent purgation is generally the first marked sign which makes known the nature of the disorder. The feces soon become mere discolored water; the thirst is then excessive; the stench is most offensive; the pulse, from being hard, shortly becomes thick and feeble, and ultimately it is intermittent; the countenance is haggard; the position of the body expresses abdominal pain. Perspirations break forth in patches; tympanitis starts up, and death speedily ensues.

It is of little use to inquire, while the animal is suffering, what has

A HORSE SUFFERING FROM DRASTIC POISON.

provoked the superpurgation; it is then most desirable, if possible, to remove the effect. The best chance of accomplishing this is by destroying

the pain that exhausts the strength, thereby affording nature the better chance of vanquishing the irritation. Ether, opium, belladonna, chalk, and catechu present the best means of doing this. These agents, when combined, support the body, allay the anguish, and check the purgation; blended with thick linseed tea, which will in some measure supply the mucus lost to the bowels, they therefore form a good drink for most occasions.

Sulphuric ether	One ounce.
Laudanum	Three ounces.
Liquor potassæ	Half an ounce.
Powdered chalk	One ounce.
Tincture of catechu	One ounce.
Cold linseed tea	One pint.

Give, throughout the acute stage, every quarter of an hour.

At the same time cleanse the quarters, plait up the tail, and throw up copious injections of cold linseed tea. Expect the horse to become greatly prostrated when amendment commences. The entire of the irritating agent must be expelled from the body before improvement can be witnessed. The subsequent recovery is announced by a pause in the symptoms; the disease appears to be stationary, whereas previously everything denoted a hastening termination.

That pause is one of suspense, for no one can say what will follow; sometimes the cessation of agony precedes immediate dissolution; sometimes recovery dates from that event. The animal, upon the slightest change being exhibited, must still be assiduously attended. Care must never cease; and, after recovery is confirmed, the food for a week must consist of linseed tea, hay tea, and gruel. On the expiration of the week, a few boiled roots may be added, three of the drinks previously ordered being administered every day. Do not bother about the bowels; no matter, should the animal be constipated for a fortnight subsequent to the thorough emptying of acute dysentery. Upon the termination of a fortnight, stop all medicine, and allow some crushed, scalded oats and beans; withdraw some of the slops as the solids advance; but let a full month expire before a drop of cold water or a mouthful of hay are permitted to be swallowed.

To escape the loss of so large a piece of property as a living horse, it is imperative the notion should be abandoned which asserts that because the horse can swallow most opening medicines with impunity, a strong purgative cannot otherwise than benefit the animal; the deduction is not fairly drawn. But not to follow up too closely so lame a prey: aloes is the general purgative in the stable; it is a drug which should never be intrusted to the hands of the groom. The difference

between the necessary and the poisonous dose is too close for the uneducated to comprehend it; more horses have been slaughtered with aloes than have perished from all the other poisons conjoined. Yet grooms are particularly fond of this medicine; the dangerous drug enters into every ball which is popular in the stable; no matter how opposite the end desired may be, in the groom's opinion aloes must produce it. Like the majority of the uneducated, the stable-man rejoices in a strong purge. Tenesmus is his delight; he loves to see sixteen or eighteen full motions, and then he cannot comprehend why the horse is weak, since the physic passed beautifully through him!

Of all persons living, grooms generally are the most prejudiced and the worst informed. All advice is disregarded; should the master speak, the groom shakes his head, and, after the lecture is ended, inquires of himself, "what the old buffer can know about it?" Here is the curse of horses! Gentlemen transfer them to the custody of the uneducated. The groom is accepted as an authority; the master asks for and is mostly governed by the opinion of an inferior. No other servant possesses such a power; no domestic more abuses his position; the carriage and the harness maker, the corn merchant, and the veterinary surgeon all pay this person five per cent. upon the employer's bills; nothing comes on to the premises but the man claims a profit from it; nothing leaves the stable but is regarded as his perquisite. He thus, while occupying a situation of trust, has an absolute interest in the extravagance of the expenditure. Wear and tear of the articles over which he watches brings to him actual emolument; his interest and his duty are at war, and when a weak person has to decide the battle, it is easy to understand on which part the victory will be declared.

CHRONIC DYSENTERY.

This affliction is not so common among horses as it is with cattle; neither is it so frequent at the present day as it appears to have formerly been. Once it was termed "molten grease," from an unfounded notion that liquid fat was discharged with the feces. Now it is known that what our ancestors took for grease is no more than the mucus, which is expelled during every form of severe intestinal irritation.

The cause of **chronic dysentery** among horses is not well understood. It is said to follow diarrhœa; but such an explanation seems to confound the commencement of one disorder with the establishment of another disease. Horses having chronic dysentery are, generally, old animals, which are subject to the will of a very poor or a very penurious man. They are badly kept, and may have to grub a scanty living from

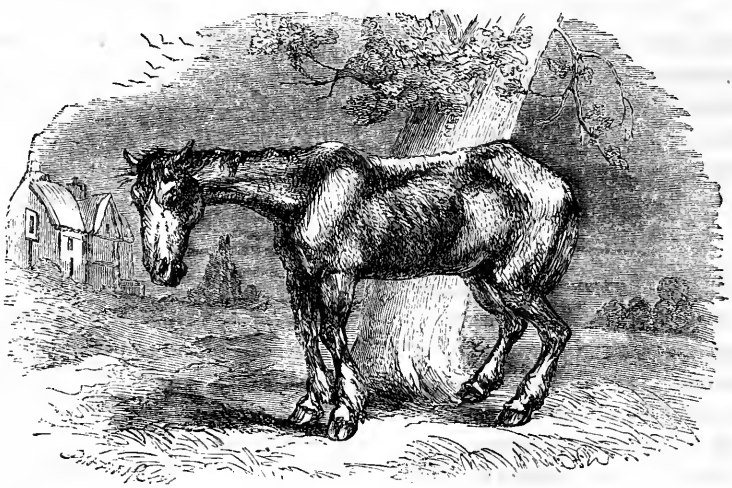
lanes and hedgerows; also, they are goaded to hard work upon watery food and sour grass. In such cases, disturbance of the bowels should be early attended to. The food should be immediately changed. Good sound oats and beans should be freely given, while the following drink is administered thrice daily:—

Crude opium	Half an ounce.
Liquor potassæ	One ounce.
Chalk	One ounce.
Tincture of all-spice	One ounce.
Alum	Half an ounce.

Mix with a quart of good ale, stir briskly, and give.

Should the primary symptom not be attended to, profuse purgation may ensue without excitement; but always will happen upon any exertion or the drinking of cold water. Violent straining often follows; the belly enlarges; the flesh wastes; the bones protrude; the skin is hide-bound; the visible mucous membranes become pallid; weakness increases; perspiration often bursts forth without occasion; the horse will stand still for hours, not grazing, nor seemingly being conscious that grass was within its reach.

At length a living skeleton alone remains of that which was a horse. The eyes have a sleepy, sad, and pathetic expression; the head is often



A HORSE SUFFERING UNDER CHRONIC DYSENTERY.

turned slowly toward the flanks; the sight remains fixed for some moments upon the seat of pain; the horse stands on one spot, or only changes it when the bowels are about to act; colic at length sets in,

though frequently it is present earlier; and the wretched quadruped then fades speedily away.

It is a general practice to turn animals suffering from chronic dysentery upon some village common. The horse is put there with scanty food and no shelter, under a plea of humanity, or "to give the old 'oss a last chance." There can be no feeling in placing a diseased animal far away from sight or help, where it must pine, shiver, and starve, in a dreary solitude.

Supposing the affected life to be claimed by a generous master, either of the following drinks may be given, thrice daily:—

Sulphuric ether	One ounce.
Laudanum	Three ounces.
Liquor potassæ	Half an ounce.
Powdered chalk	One ounce.
Tincture of catechu	One ounce.
Cold linseed tea	One pint.

Choloroform	Half an ounce.
Extract of belladonna	Half a drachm.
Carbonate of ammonia	One drachm.
Powdered camphor	Half a drachm.
Tincture of oak bark	One ounce.
Cold linseed tea	One pint.

The above drinks may be changed, as either appears to have ceased to operate. The food should be of the best and lightest description. Boiled roots, boiled linseed, boiled rice, crushed and boiled malt, etc. etc.; no hay. The body should be frequently dressed, and always clothed. A good bed ought to be allowed. The lodging must be well drained and roomy.

Yet, after all this trouble, a speedy cure is not to be expected; and rarely does an old horse, should it recover, prove highly useful. How sad, however, is that condition where the continuance of the life is made conditional upon the service of the body—where interest is the only motive which permits existence! No sympathy to be anticipated in suffering; no pity in disease! The only feeling that actuates the custodian is a cold regard for the gain which the jaded being can yet bring him. A life of usefulness, years of toil, injuries sustained and accidents surmounted,—all cannot win a day's respite from the doom which attends the creature whose exertions in man's service have led to the disablement of its powers. Such, however, is the fate of the horse in England, which land specially boasts it is a "Christian country."

Chronic dysentery is the inheritance which the horse earns from being subjected to the dominion of man. Excessive labor, filthy lodging, and

innutritious diet are the causes. Each of these causes increases as the age advances.

Prior to its domestication, the horse might not have found on every spot an abundance of excellent fodder; but then it was at liberty to seek a better fare in another place. Man has taken away all power of choice; he forces the creature to toil, and obliges it to eat only that which parsimony may afford to place before it. When so vast and so absolute a power is claimed, it becomes a positive duty to see the mere animal necessities are satisfied: it is cruel folly to tax the powers and to stint the body. It is a crime to undertake a trust and then confide the fulfillment of its responsibility to an ignorant inferior. It is a sin to seize on life and to neglect the prisoner you hold in captivity. Where existence is claimed as a property, and animation is forced to wear out being in labor for the master's profit, surely the least obligation the superior could own should be the provision of ample lodging and fitting sustenance! Both are withheld from the aged horse.

ACITES, OR DROPSY OF THE ABDOMEN.

In the horse, **acute peritonitis** is unknown, save as the result of operation; then its fury takes possession of the cavity and generally refuses to yield to medicine. It is different, however, with chronic peritonitis, which, though not a common disorder, is too often encountered to be esteemed a rare disease. It is, when early noticed, tractable; but the earlier symptoms are generally not understood. The first sign is a ragged coat and a tender state of the abdomen; the horse, which was passive previously, now shrinks from the curry-comb; snaps and kicks at him who dresses it. Such actions are viewed as denoting a return of spirit. Intending to encourage the favorite quality of the stable, the flank is violently struck or slapped by the servant; and the indication forced from a dumb animal by agony, is by grooms regarded as the proof of reviving animation.

Masters should, in justice to themselves if from no higher motive, visit the stable more frequently than is their custom. The horse is all gentleness and simplicity; a groom only knows less about the animal than a child, for he has acquired notions which induce him to misinterpret plain actions. Every owner of a stable should learn to feel and count the horse's pulse; he should be acquainted with the normal standard and its healthy character; chronic peritonitis might then early be discovered. The pulse under this disease is hard and small, it vibrates about sixty times in a minute. The head is pendulous; the food is oftener spoiled, rather scattered about than eaten; the membranes are pale and the

mouth is dry; pressure upon the abdomen elicits a groan, and turning in the stall always calls forth a grunt.

When such symptoms are observed, the food should be small in bulk, but nutritious in quality; no work should be imposed; the medicine should be tonic and alterative.

Strychnia	A quarter of a grain, worked gradually up to one grain.
Iodide of iron	Half a drachm, worked gradually up to one drachm and a half.
Extract of belladonna . .	One scruple.
Extract of gentian . . .	A sufficiency.
Powdered quassia . . .	A sufficiency.

Make into a ball; give one at night and at morning.

Small blisters should succeed each other upon the abdomen; but as these cases are always tedious and very much depends upon the constitution of the animal, charity alone should propose such a disease for treatment, as the general termination of the malady is incurable dropsy of the abdomen.

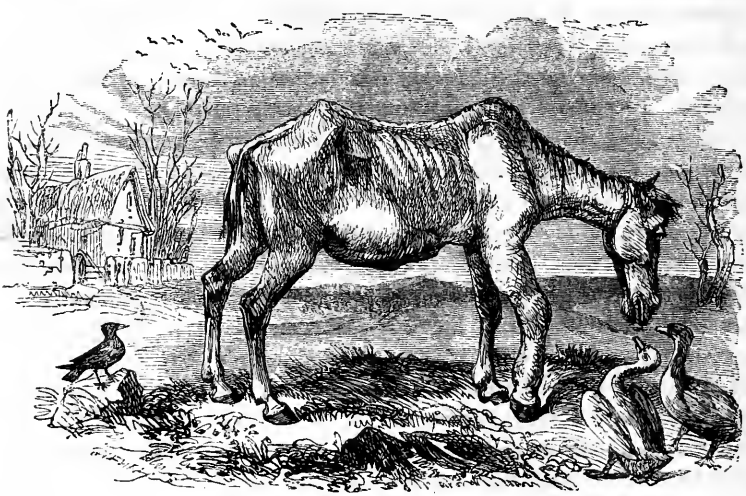
Acites offers a good illustration of the loss inhumanity brings down upon man, and of the gain which would attend a loftier conduct. Chronic peritonitis attacks aged animals; such horses are used only for harness purposes. Few masters inquire what propels the carriage, so the vehicle gets over the ground. The affected quadruped cannot drag its own body; thus more than double duty is cast upon the sound steed. The single horse has not only to draw the entire carriage and its load, but it also has to pull along its disabled companion. Servants frequently hide defects, hoping that time will remedy them, or dreading the reception proverbially given to the bearer of bad tidings; thus the sound horse ultimately fails, while the sick animal is rendered worse by violent exercise.

However, with the honesty which seems to prevail in and around the stable, the diseased horse is often sent to the nearest market. The proprietor, under some strange quibble of conscience, sells to another that which he is convinced is worthless. A rich master vends and a poor man buys; the cheatery of such a bargain is obvious, but to such results always tend a violated contract. The natural contract between man and horse is outraged; a conditional gift is construed to imply an unconditional bestowal. The terms are warped according to the convenience of the receiver; the possibility of any obligation being implied is never suspected. A few, and very few good people, from feeling only fulfill the conditions of the bond; but kindness, when bestowed upon the horse, is regarded as a weakness and a gratuity. From the highest to the

lowest, none think that all of animated creatures are born with rights; no one behaves as though domesticated animals were only intrusted to the care of man. Violation of moral conditions begins the evil, which ends in cheatery and robbery of one another.

The symptoms which announce that the serous membrane has effused water into the abdomen are a want of spirit; constant lying down and remaining in one position for a long period; perpetual restlessness; thirst; loss of appetite; thinness; weakness; enlarged abdomen; constipation and hide-bound.

The enlargement of the belly has something peculiar in it; the swelling lies toward the inferior portion of the abdomen. Near the loins there is apparently an empty space; if the hand be placed on the enlargement, and another person strikes the belly on the opposite side, a sense of fluctuation can be distinctly felt. If the horse be thrown upon its back, the swelling will, with the change of position, gravitate toward the loins. At length small bags containing fluid depend from the chest and the inferior surface of the belly. Should the disease be suffered to progress, the sheath and one leg generally enlarge; the hair of the mane



A HORSE WITH ACITES, OR ABDOMINAL DROPSY.

breaks off and is easily pulled out. Where once hung the tail now remains little more than the dock with a few scattered hairs. Ultimately purgation starts up, which terminates the suffering.

Of course, after effusion, all treatment is powerless—creatures in the last stage of dropsy presenting sights which the mind shudders to contemplate; objects of this kind are sometimes to be seen on commons in

the neighborhood of London. They are turned out to die miserably under the plea of humanity; the utmost limit of cruelty is justified or made pleasant by a pretense to sympathy. The poor horse literally starves; were there food to eat, the remaining strength would not serve to collect it. Still the proprietor is so very humane he cannot endure to destroy the property he has paid for; the poor animal is therefore thrust forth to cheaply live, or to die without trouble to its owner.

INFLUENZA.

This affection may rage throughout the kingdom, or it may be located upon a very circumscribed spot. In a disorder so eccentric, it is very difficult to decide the question whether or not it is contagious; it commonly runs through the stable in which it appears; but it does not invariably attack every animal within the building. It may, in a large edifice, first seize the horse nearest the door, then travel to the stall farthest from the entrance; thus it skips about without regularity, and often spares many individuals.

Occasionally **influenza** fixes upon an animal when in the field; but it is a more probable visitant of the stable: this is a seeming proof that the contagion does not reside in the air, since the atmosphere is as much as possible excluded from every mews. We may conjecture it is not dependent upon any vapor exuding from the earth, since the creatures whose noses are nearly always in contact with the herbage are, of all others, least liable to the affection.

It is terrible to contemplate the suffering and loss of life which have been consequent upon the errors of mankind. Influenza is regarded as a new disease; a new name deceives the world, though it is more than probable that a disorder of a low, febrile, and typhoid character has prevailed among animals for many ages. Nature has, for thousands of years, been striving to enforce the self-evident truth that man is by moral obligation bound to provide for the welfare of the animal he enslaves. His gain or the inclination of his will can be no argument against the fulfillment of so plain a duty; the implied contract, the common parent of all living things, has been emphasizing with sickness and with death; all has been to no purpose. Cunning men have been employed, and nostrums have been invented to maintain misrule; wealth has been sacrificed and ruin endured, to uphold an unrighteous cause; but the voice of nature pleading for her children has not been understood.

Even at this day the old fault is to be met with on every hand; it is exhibited by the rich as well as by the poor, by the highly educated and

by the very ignorant. In every place exist horses of fabulous excellence in the master's opinion, imprisoned within walls which exclude the vital air. The roof may not permit the animal's head to be raised, the sides may not allow the body to be turned; the fumes within the walls shall oppress the lungs and sting the eyes of the man who enters the building; yet within a circumscribed space, so foul and pestilential, the horse is doomed to exist. Then the animal's disease is heard of with surprise, and its death is lamented as a misfortune!

What cause is there for grief or for wonder, if impurity does generate disease and death? What need has man to ape the martyr, because influenza starts from the contamination which by human will has been created? The pest once originated sweeps onward, nor can mortal exclamation nor mortal sorrow check the course of the destroyer; all fall alike before the scourge. The filthy and the cleanly alike are stricken; yet neither masters nor legislators can draw wisdom from the visitation.

In influenza there is no difficulty in pointing to the structure affected; it would, however, be hard to allude to the part which was not involved. The weakness and stupidity which accompany the affection declare the brain and nervous system to be diseased. Local swellings show the cellular tissue to be deranged; heat and pain in the limbs and joints announce the serous, the ligamentous, and osseous structures implicated. The muscular and digestive functions are acutely disordered; the rapid wasting of the flesh demonstrate the absorbents are excited. There is no portion of the body which can escape the ravage of influenza.

Youth, or rather the approach of adultism, is the favorite season of the attack, which is most prevalent during the spring time of the year. There is, however, no period or any age which are altogether exempt from its influence.

All kinds of treatment have been experimented with. Bleeding, purging, blistering, setoning have all been tried, and each has destroyed more lives than the whole can boast of having saved; experience has by slow degrees shown the inutility of active treatment. *Bold* measures, as those plans are termed which add to another's suffering, commonly end in hydrothorax or water on the chest.

It is difficult to determine when the first symptom of influenza is present. The author is indebted to the acuteness of Mr. T. W. Gowing, V. S., of Camden Town, for a knowledge of a marked indication declarative of the presence of influenza. A yellowness of the mucous membranes, best shown on the conjunctiva or white of the eye, is very characteristic. Whenever the sign is seen and sudden weakness remarked, caution should be practiced, for it is ten to one that the pestilence is approaching. Influenza is a very simulative disorder; it has

appeared as laminitis; disease of the lungs is, perhaps, its favorite type. Bowel complaints are apt to imitate each other; blowing generally commences such disorders. But when influenza is prevalent, let the body's strength and the yellowness or redness of the membranes be always looked to before any more prominent indication is particularly observed.

The other symptoms—which, however, are very uncertain, as regards any of them being present or absent—are pendulous head, short breath, inflamed membranes, swollen lips, dry mouth, enlarged eyelids, copious tears, sore throat, tucked up flanks, compressed tail, filled legs, big joints, lameness and hot feet. Auscultation may detect a grating sound at the chest, or a noise like brickbats falling down stairs at the windpipe; whenever this last peculiarity is audible there is a copious nasal discharge. Sometimes one foot is acutely painful, and, notwithstanding the weakness, the leg is held in the air. Purgation has been witnessed, although constipation usually prevails, and the animal generally stands during the continuance of the disorder.

Move the horse slowly to a well-littered, loose box; mind the door

CONFIRMED INFLUENZA.

does not open to the north or to the east. No food will be eaten; but suspend a pail of well-made gruel within easy reach of the animal's head. Let the gruel be changed or the receptacle replenished at stated periods, thrice daily; sprinkle one scruple of calomel upon the tongue, and wash it down with a drink composed of sulphuric either, one ounce; laudanum, one ounce; water, half a pint; do this night and morning. Should the weakness be excessive, double the quantity of ether and of laudanum contained in the draughts. Watch the pulse—it always is feeble, but at first has a wiry feeling. So soon as the character of the pulse changes or the wiry sensation departs, which generally happens when the nasal discharge becomes copious and cough appears, one pot

of stout may be allowed, and some nourishing food, as bread, on which a very little salt has been sprinkled, may be offered by hand. The horse feels man to be its master and appreciates any attention bestowed upon it in the hour of sickness. It will stand still to be caressed, and advance its hanging ears to catch the accents of sympathy.

Beware of what is termed active treatment; a purgative is death during influenza. It generally will induce the prostration from which the animal never recovers. Formerly it was common to see four strong men propping up a horse during its endeavor to walk. But the lower class are fond of joking one with another. Such was the usual result of their employment on these occasions. In the fun the horse got but partial support, while the noise distressed the diseased sensibilities. Horses

A COMMON SIGHT DURING RECOVERY FROM INFLUENZA, WHEN ACTIVELY TREATED.

have large sympathies, and readily comprehend the attentions dictated by kindness. The disregard which people too often display toward sickness in an animal acutely pains the creature: its effects may be told by the altered character of the pulse. Whereas the voice, when softened by pity, often causes the heavy head to be turned toward the speaker; and the muzzle of a diseased inmate of the stable has frequently reposed long upon the chest of the writer.

ABDOMINAL INJURIES.

These are of various kinds. They differ materially, but they all provoke inflammation of the vast serous membranes lining the abdominal cavity; and their symptoms are therefore too nearly alike to be distinguished from each other. A mere list of such perils must astonish the reader; and his pity will be excited when he learns that such accidents, numerous as they are, generate the most violent agony. These injuries consist of ruptured diaphragm, ruptured stomach, ruptured spleen,

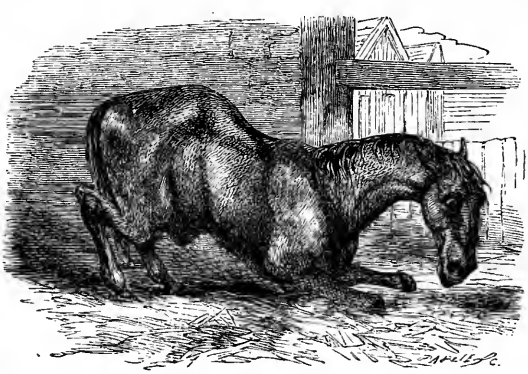
ruptured intestines, strangulation, intro-susception, impactment, and calculus.

Ruptured diaphragm is attended with a soft cough, and symptoms of broken wind—occasioned by the almost sole employment of the abdominal muscles—with sitting on the haunches. Still, Professor

AN UNNATURAL ATTITUDE, INDICATIVE OF SOME ABDOMINAL INJURY.

Spooner, of the Royal Veterinary College, mentioned in his lectures that an animal belonging to the Zoological Society lived two years with a ruptured diaphragm, through which the bowel protruded into the thorax. In the horse such a lesion is speedily fatal.

A position so unnatural as that of sitting on the haunches may



A POSITION OFTEN ASSUMED BY THE HORSE SUFFERING FROM ABDOMINAL INJURY.

denote something very wrong to be present; but it gives no definite direction to our ideas. Animals are known to have assumed it, and

subsequently to have recovered. The diaphragm when it yields generally gives way upon the tendinous portion. Through the opening the peristaltic action soon causes the bowels to obtrude; and death is produced by displacement and strangulation of the intestine. The posture previously delineated is common to all injuries of the abdomen; so is the opposite peculiarity—or the horse remaining upon its chest. The last attitude may not, to most persons, appear so strange, seeing that the creature assumes it whenever it rises or lies down. Then, however, it is only momentary. When it denotes abdominal injury, it is comparatively of long continuance. At the same time the breathing and the countenance bespeak the greatest internal anguish.

Ruptured spleen is the gentlest death of all those which spring from abdominal injury. The spleen is at present a mystery to veterinary science. It has been discovered after death of enormous size; but the symptoms during life had not led to the expectation of any very serious disorder. Ruptured spleen and ruptured liver are both productive of similar symptoms; both answer to the same tests, and the termination of each is alike.

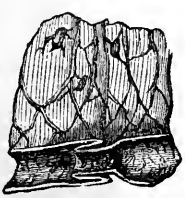
TEST FOR HEMORRHAGE FROM THE SPLEEN.

Ruptured stomach mostly happens with old and enfeebled horses. Night cab-horses are very liable to it; so also are animals of heavy draught. The drivers often neglect to take out the nose-bags. The horse's most urgent necessities always yield to man's passing convenience; so the creature has to journey far or to remain out till the empty stomach grows debilitated. It is then taken home and placed before abundance. Elsewhere this folly has been commented upon. It was shown that light food and perfect rest were the best restoratives for an exhausted frame. The drivers, however, refuse to be taught. The horse eats and eats. No contraction of the exhausted stomach warns the animal when to stop. The viscus is crammed. Then digestion endeavors to commence. With rest the organ recovers some tone. The muscular coat of the sac starts into action, and, encountering opposition,

A RUPTURED STOMACH.

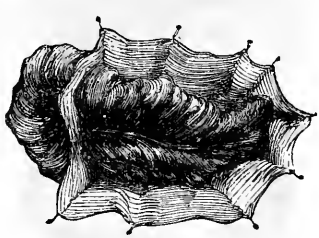
the vital powers exert themselves with the greater energy. The stomach is thus burst by its own inherent force; the largest division of its various structures always being exhibited by the elastic peritoneal covering —the lesser rent being left upon the inelastic mucous lining membrane. Excessive colic, followed by tympanitis, are the only general symptoms which attend ruptured stomach. The history of the case, if it can be obtained, is, however, a better guide; but there are too often interested motives for distorting the facts. Vomition through the nostrils has been thought to particularize ruptured stomach; but experience has ascertained that vomition may be induced by any lesion which is sufficiently great to cause revulsion of the system.

Intro-susception is always preceded by colic. The last-named affection causes portions of the bowels to contract. Such contracted intestines become small, firm, and stiff. They are, while in that condition, by the peristaltic action readily pushed up other portions of the canal, which are of the natural size. The entrance of the contracted bowel acts upon the healthy tube as if it were a foreign substance. Contractibility is excited. The displaced and intruding bowel is grasped as by a vice, and the accident is of that kind which provokes its own continuance. Cure is hopeless, while consciousness remains; the only hope is the administration of chloroform in full and long-continued doses; thereby to arrest vitality and chance the release of the imprisoned gut. While intro-susception lasts, all passage is effectually stopped. Inflammation soon commences, and the symptoms of outrageous colic are exhibited. However, such is not always the case. Mr. Woodger, veterinary surgeon of Bishop's Mews, Paddington, attended a case of this description, in which the symptoms present seemed to denote congestion of the lungs.



THE INTESTINE DIVIDED SO AS TO CLEARLY SHOW THE NATURE OF INTRO-SUSCEPTION.

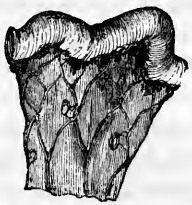
Invagination is here used to express the entrance of one entire division of the bowels within another. In this sense it is chiefly witnessed upon the large intestines; whereas intro-susception is mostly present upon the smaller bowels. The mesentery must be ruptured before such an accident can take place; but then the agony attendant upon the previous derangement is so powerful that it is impossible for the hugeness of this lesion to increase the violence of the torture; nor is there any sign by which so sad a catastrophe can be predicated.



THE CŒCUM INVAGINATED WITHIN THE COLON, AND BLACK FROM INTENSE INFLAMMATION.

Before **strangulation** can possibly occur, the mesentery must be sundered. It almost always happens to a portion of the small intestines. The bowel, freed from its support, soon involves itself with numerous complications; or the rent membrane may twine round a knuckle of the gut.

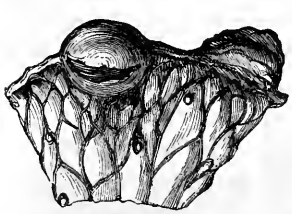
A KNUCKLE OF INTESTINE STRANGULATED BY THE RUPTURED MESENTERY.



RUPTURE OF THE SMALL INTESTINES.

The above illustration, however, shows one of the simplest forms in which the accident can possibly take place; but no person, however acute, could distinguish between strangulation from rupture of the intestines. The last generally occurs upon the smaller bowels, and happens to the interspaces upon the superior portion of the tube, between the vessels which nourish the digestive canal. The ingesta is consequently forced between the layers of the mesentery. The most intense anguish, inflammation, and death are the consequences.

Calculus or stone may be present, either in the stomach or in the canal. Those in the stomach are of small size; those within the intestines may attain the weight of more than twenty pounds. Those of the stomach are always smooth, as also may be those of the bowels. To the intestines, however, there are common three kinds of, or differently composed calculi: the triple phosphate or the earthy; one formed of the minute hairs which originally surrounded the kernel of the oat; and another composed of dung, held together by the mucous secretion of the bowel. Any of these calculi may, as the size increases, gradually stretch the intestine; thus forming a living sac within which the stone abides. While it remains there, the food passes over it and no injury is occasioned. But by any movement it is likely to be dislodged and thrown into the healthy channel. There it is firmly grasped with such force as to produce rupture of the intestine, and the hold is only relaxed after inflammation has ended in mortification and in death. The bowels, in truth, are impacted by calculus. The passage



THE SAC FORMED IN THE BOWEL; THIS THE CALCULUS HAS QUITTED, WHILE ANOTHER PORTION OF THE INTESTINE HAS SO FIRMLY GRASPED IT AS TO RUPTURE ITSELF.

is stopped. However different the causes of abdominal injury may appear, they are each generally characterized by the severest possible abdominal pain. This symptom is often so violent that the agony conceals all other indications; or if any others can be exhibited, they are so partially shown and displayed for so very brief a space as not to permit of their being rightly interpreted.

It is very desirable that every one should witness a powerful horse in its agony. No stronger means could be found for enforcing such a lesson than the sufferings which spring from abdominal injuries. When this is proposed it is not intended the person should look on misery only so long as the spectacle stimulated his feelings; but that he should watch hour after hour and behold the afflicted life resigned under the pressure of mighty torment. Were such a sight once contemplated—were man fully conscious of how brimming with horrible expression every feature of the horse's frame can become—the thought of anguish wrenching life out of so huge a trunk would surely compel the better treatment of a gentle, inoffensive, and serviceable slave. Ruptured stomach a little forethought would prevent. The triple phosphate calculus is common among millers' horses, which are foully fed from the sweepings of the shop. But if man will oblige duty to bow before convenience, or make it secondary to expense, the misery he inflicts will surely in justice recoil upon himself.

Abdominal injuries are probably the sources of the greatest agony horse-flesh can endure. To account for the generality of such lesions, it is merely necessary to regard the places in which horses are housed and the manner in which they are fed. In the owner's estimation a horse seems to be a horse, in the same sense as a table is a table. Both objects are necessary to his comfort, to his pride, or to his profit. Neither have higher claims. Both are to be used and to be flung aside. The one is to be cleaned and repaired at the cheapest rate; the other is to be lodged and supported at the lowest cost. When either grow old in his service, each is equally to be discarded. The two things apparently rank in man's estimation as simple chattels subject to his will and made to please his fancy. That there is a huge life, a breathing sensibility attached to one of these articles; that it delights in its master's pleasure, and, if properly trained, it is capable of sharing its master's emotions, is so preposterous a sentimentality as to be "with scorn rejected."

Nobody speaks of the horse as a creature enjoying man's highest gift—as a *living* animal. Everybody talks about his or her constitution; but no one imagines the horse has a constitution which can be destroyed. All horses are expected to thrive equally. They are regarded as things to be used, and to be sold or packed away when not

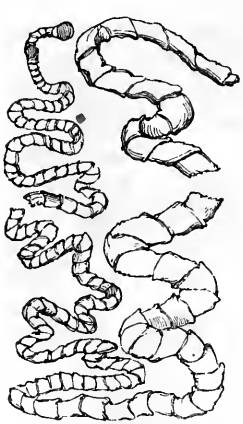
required. They are obliged to live by man's direction, and are expected to display the highest spirit whenever they are taken abroad. Should it be astonishing if the framework nature has so exquisitely balanced occasionally becomes deranged under man's barbarous and selfish sway? Is it cause for legitimate wonder if, under so coarse a rule, disease sometimes assumes strange forms, or attacks parts which are beyond the reach of human science?

WORMS.

Worms are of various kinds; but all, according to the notions of ignorance, announce their presence by particular symptoms. The parasites, when really present, can, however, cause no more than intestinal irritation, the continuance of which may give rise to several disorders. Chronic indigestion is by the groom always recognized as a "wormy condition."

The only certain proof of the existence of such annoyances is visible evidence. Upon suspicion, careful horse proprietors may administer certain medicine, because some physics only cool the body and cleanse the system. The generality of worm-powders are, however, too potent to be safe. Like all drugs sold as "certain cures," they are so powerful that they frequently do more than remove the disorder which they pretend to eradicate—for they also destroy the animals to which they are administered.

Having premised thus much, the author will now commence to describe the usual form of irritation to which worms of different kinds give rise.

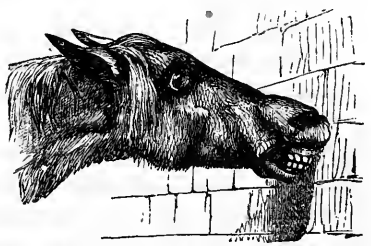


THE TÆNIA OR TAPE-WORM.

The parasite especially inimical to colts is the **tænia** or **tape-worm**. It is mostly perpetuated by the farmer's prejudice, which procures foals from dams that are done up for work: which starves the mother till her produce runs by her side, and which attempts to rear young stock upon the sour grass of a public common. Both sire and dam should be in perfect health if a valuable colt is desired: neither can be too good. The mare should not, during gestation, be "turned out" to distend the abdomen with watery provender—to have the stomach and intestines filled with bots—to allow filth and excretions to accumulate upon the coat and to check the healthy functions of the skin. Gentle work, only sufficient to earn the stable-keep, will injure no animal. The mare

will rather be benefited by *moderate* exercise, and by also having all the food and attention to which she has become habituated. But to expose a mare during the summer months, and to stint the animal during the winter season, can produce nothing which shall repay the expense of rearing. The little progeny before it sees the light is the inhabitant of an unhealthy home; after birth the mother's secretion is thin, poor, and watery. It neither satisfies the cravings of hunger nor can nourish a body into growth. Ill health in the young encourages parasites. The colt soon becomes the prey of the tænia.

The young when afflicted with the above parasite may not die, but they are reserved for a miserable and a useless life. The developments are checked. The foal grows up with a large head, low crest, tumefied abdomen, and long legs. If it be a male it cannot be operated upon before the fourth year; even then it is cast only because there is no hope of further improvement. The appetite during the long time of rearing is more than good; the ribs, nevertheless, are not covered with flesh; the dung is not well comminuted—it is friable and sometimes partially coated with slime; the anus projects—occasionally it is soiled by adherent strips of tenacious mucus, almost like to membrane; the coat is unhealthy; the breath fetid; the animal may rub its nose violently against a wall or remain straining it upward for a considerable time; the eye becomes unnaturally bright; the colt begins to pick and bite its body, often pulling off hair by the mouthful.



IRRITATION CAUSED BY WORMS. THE NOSE RUBBED VIOLENTLY AGAINST A WALL.

A COLT PICKING THE HAIR FROM ITS LEG BECAUSE OF WORMS.

All this agony and the deprivation of a life depends on the parsimony of man. Women know that the body during certain times requires extra nutriment. Thus delicate ladies in peculiar states are accustomed to take "hearty pulls" at porter or at stout. It is very general for physiologists to

argue from animals up to man. Why should not the custom be reversed? Why should not veterinary science reason from the human being down to the horse, and thereby instruct the stolid in the necessary requirements of the mare during particular states? "Stint the dam and starve the foal" is certainly a true proverb.

Tænia is best destroyed by the spirits of turpentine in the following quantities:—

A foal	Two drachms.
Three months old	Half an ounce.
Six months	One ounce.
One year	One ounce and a half.
Two years	Two ounces.
Three years	Three ounces.
Four years and upwards	Four ounces.

Procure one pound of quassia chips. Pour into these three quarts of boiling water. Strain the liquor. Cause the turpentine to blend, by means of yolks of eggs, with so much of the quassia infusion as may be necessary. Add one scruple of powdered camphor to the full drink, and give every morning before allowing any food.

This probably may kill the worms; but as every link of the tænia is a distinct animal of both sexes, and capable of producing itself, the eggs must be numerous. For the destruction of these, nourishing prepared food is essential, such as gruel, scalded oats, etc.; but little or no hay. At the same time a tonic will be of all service. Take

Liquor arsenicalis	From one to eight drachms.
Muriated tincture of iron	From one and a half to twelve drachms.
Extract of belladonna	From ten grains to two drachms.
Ale or good stout	Half a pint to a quart.

Mix. Give every morning to the animal—strength being proportioned to age—till the coat is glossy.

Lumbrici are more dreadful to contemplate than they appear to be

THE LUMBRICUS, A WORM NOT PECULIAR TO HORSES. ONE-FOURTH OF THE NATURAL SIZE.

AN ASCARIDIS, NATURAL SIZE.

A STRONGULUS, NATURAL SIZE.

fearful in reality; specimens are not rare which measure eighteen inches.

This worm preys upon the weakly, be they old or young. One tænia will produce immense disturbance; whereas numbers of the lumbrici will cause little or no effect. Whoever has remarked the dunghill in a knacker's yard has seen it to consist quite as much of lumbrici as of excrement. Mr. Woodger, of Bishop's Road, Paddington, removes these pests with ease and certainty. The above-named veterinary surgeon gives two drachms of tartarized antimony with a sufficiency of common mass, as a ball, every morning, until the parasites are expelled.

ASCARIDES AND STRONGULI.

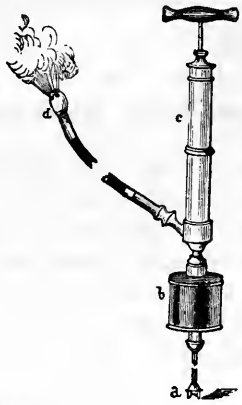
These parasites inhabit the large intestines. They produce extraordinary ravages, notwithstanding their insignificant appearance. The last is difficult to eradicate because of the extent of bowel which it infests. The **stronguli** will sometimes eat through important structures, but the **ascarides** are always located within the rectum. Then, most medicines being deprived of activity, are inoperative before they reach the last locality. For this reason it is best to commence the treatment with injections of *train* oil. Should these be followed by no result at the expiration of a week, resort to a solution of catechu —one ounce to the quart of water: give that for seven mornings. Upon the eighth, give the animal a mash, and at night administer a mild physic ball; about four drachms of aloes and one drachm of calomel. Repeat the medicine if required; but if not, resort at once to the arsenicalis and ale or stout, which was recently recommended.

a. The sole opening by which air can enter. It is placed upon the ground and guarded by a valve; so that air, after having entered, cannot leave the instrument by this opening.

b. The box containing lighted tobacco, through which all air drawn into the instrument must necessarily pass.

c. The pump.

d. The end of the tube through which the fumes are driven.



To load the instrument: unscrew the lid of the box. Fill that with lighted tobacco. Fix on the lid again. Rest the air entrance upon the ground, and move the handle of the pump up and down. By this movement the air is first drawn through the lighted tobacco into the pump, and is then sent through the tube.

THE APPARATUS BY MEANS OF WHICH A TOBACCO SMOKE ENEMA IS ADMINISTERED.

A HORSE THAT HAS RUBBED ITSELF VIOLENTLY AGAINST A WALL.

Tobacco smoke enemas are sometimes efficacious when all the previous measures are powerless. Frequently the posterior irritation is distressing. It is sometimes so provoking that the horse will thereby be induced to destroy its personal appearance by rubbing the tail and quarter violently against the wall, or any rough surface within its reach. In such cases the injections of train oil are most likely to prove beneficial; the local itching may be in some measure removed by inserting up the anus a portion of the following ointment night and morning:—

Glycerin	Half an ounce.
Spermaceti	One ounce.

Melt the last and blend. When nearly cold, add—

Mercurial ointment (strong)	Three drachms.
Powdered camphor	Three drachms.

SPASMODIC COLIC.—FRET.—GRIPES.

Spasmodic colic is an affection which every loiterer about a stable, from a postboy to a farrier, imagines he is able to cure. Many attacks no doubt would depart of themselves; others might be removed by simple motion. Nevertheless, such possible remedies should never be trusted. Neither should gin and pepper, red pepper and peppermint, hot beer and mustard, rubbing the abdomen with a broomstick, kneading the belly violently with a man's knee, or any popular measure be permitted. Such remedies are likely to get rid of colic by causing enteritis. When inflammation of the bowels thus originates, it is generally fatal, the strength being exhausted and the powers of nature worn out by the previous disorder—not to mention the prepossession of the spectators, which prevents the more serious disease from being early recognized.

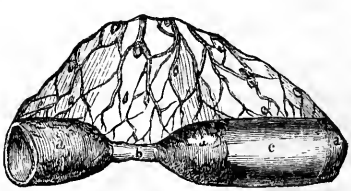


DIAGRAM EXPLAINING HOW THE BOWELS ARE AFFECTED BY SPASMODIC COLIC.

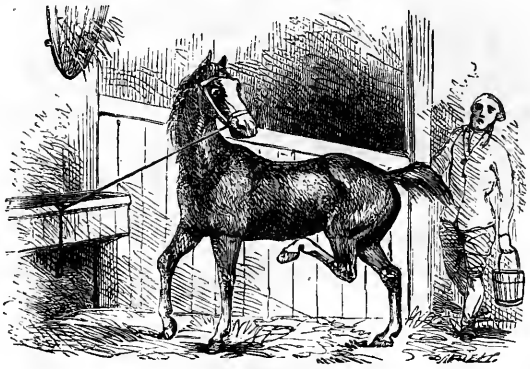
a a. The healthy intestine rendered much more vascular by the blood being spasmodically driven out of other portions of the tube.
b. A portion of the tube much diminished by the presence of abdominal spasm.
c. The pallid appearance, denoting the place which colic has recently attacked.

Any cause may kindle colic. It is common after fast driving; hence many gentlemen take colic drinks to Epsom races. That affection which in ladies is designated spasms, in gentlemen is called pain in the bowels, and in children is known as the bellyache, is, in the horse, colic; and from the largeness of the animal's intestines, the affection probably provokes more anguish in the quadruped than the same disorder does in the entire human race. Under whatever term it may be recognized, spasmodic colic is never more than

partial contraction of the muscular coat of the intestines. The action so compresses a part of the tube as to expel the blood and render the natural pink of the tissues, for some time after the disorder has departed, a glistening white. The blood, driven from particular spots, is forced into those parts in which no disease exists. Excess of blood predisposes to inflammation; hence we probably trace the reason why, if spasmodic colic be suffered to continue, the affection is so apt to end in incurable enteritis.

Colic most often attacks the small intestines, though the disease is by no means confined to those parts. It first occurs on a limited space; presently it vanishes altogether, and afterward reappears on some distant portion of the alimentary canal; or, in other words, colic dodges about, its attacks becoming more numerous and the intermissions shorter as the period of its commencement grows more distant. Change of water, change of food, getting wet, fatiguing journeys, are all likely to originate it; but, perhaps, it is most frequently exhibited when no known cause is in operation. Aloes, however, are proved to be among the surest provocatives of this disease. Many horses cannot swallow pure aloes in any form, without being severely griped. For such animals, the following drench is recommended, instead of the above-named drug in substance:—

Sulphuric ether and laudanum, of each	One ounce.
Compound tincture of aloes made with diluted spirits of wine .	Five ounces.
Cold water	One pint.



THE FIRST STAGE OF SPASMODIC COLIC.

If greater strength be requisite, obtain it by the addition of tincture of gentian, every ounce of which is equal, when combined, to one drachm of aloes.

Colic always commences suddenly; it starts into life ready armed for

mischief. The animal may be apparently well and feeding. Without visible cause the head is raised and the occupation ceases. Should the pain last, the hind foot is lifted to strike the belly, and the fore leg begins to scrape the pavement. The groom, who has merely left to procure a pail of water from an adjacent pump, on his return discovers his charge exhibiting evident signs of uneasiness. As the man stares, wondering what can be the matter, the horse is pawing and the nose slowly points to the flank. All then is explained. **Fret** is the matter, and it would be "*fret,*" should the disease prove to be of a very different nature.

While the horse is being watched, every indication of disturbance may disappear. The countenance tranquilizes and the nose is again inserted into the manger. A few minutes elapse and the pangs are renewed. The second fit may last longer and be slightly more severe. Then another, but a shorter period of ease follows: thus the visitations will ensue upon spaces of entire exemption from anguish. The recommencement of agony usually is denoted by a disposition to lie down. The animal crouches; next it turns round as though the intention was to stretch out the limbs; but suddenly the erect attitude is assumed—the design, lately so nearly executed, having been forgotten. Then pawing and striking at the abdomen quickly follow; and while the horse looks toward the flank, a morbid fire is perceptible in the eye.

THE SECOND STAGE OF SPASMODIC COLIC.

No relief being afforded, the pains lengthen, while the intervals of tranquillity become shorter. The action grows more fierce and the aspect more wild. The pawing is more brief, but more energetic; often during its continuance the foot is raised and violently stamped upon the ground. The animal now does not attempt to feed, but stares for a minute at a time, with an inquiring gaze, toward the abdomen. At length, without

warning or preparation, the body leaps upward to fall violently upon the floor. The shock is often fearful; but the animal in its torment appears to derive ease from the violence. Being down, it rolls from side to side and kicks about, until one of its feet, touching the wall, enables the horse to poise itself upon the back.

Should relief not be quickly provided, colic soon passes into enteritis. The pulse, from being unchanged at first, then simply quickened by pain,

THE THIRD STAGE OF SPASMODIC COLIC.

grows harder and more wiry. The intermissions are lost, and though the anguish may for a space be less, yet in its continuity it is more exhausting.

On the appearance of colic, the morbid action ought to be immediately counteracted. Aloes in solution is generally administered; such a medicine, unless guarded as before recommended, is by no means advisable. Sulphuric ether and laudanum should be in the possession of every horse proprietor. One pint of each—the two being mixed together, with one ounce of rank oil floating on the top to prevent evaporation or mistakes—will be perfectly safe in any household. The mixture should, however, be well shaken before it is employed: two ounces of the combination in half a pint of water constitutes an excellent colic drink. Give three of these, one every ten minutes. If no improvement be displayed, double the quantity of the active agents and continue the drenches at the period stated: these medicines should be persevered with until the symptoms disappear.

Turpentine, as an enema, is an excellent adjunct. Mr. T. W. Gowing, of Camden Town, cured a lingering fit of colic by administering a pint of turpentine mixed with a quart of the solution of soap. The strong liquor of ammonia, diluted with six times its bulk of water and applied by means of a saturated cloth, held to the abdomen in a rug several

times doubled, is likewise frequently beneficial. If these means, used simultaneously, produce no amendment in two hours, watch the pulse, for there is most probably something beyond simple colic to contend with.

Upon the earliest symptom the horse should be removed to a loose box amply protected by trusses of straw ranged against the walls. Into this the animal should be immediately led—for the reader must under-

APPLYING AN AMMONIACAL BLISTER.

stand colic does not always observe the stages in which it has been described. Occasionally it commences in the wildest form; and if a loose box be not at hand, one can always be extemporized by removing the carriage from its house, by throwing the doors wide open and by placing a bar across the entrance.

No disease is more quickly dispelled if treated at the commencement; nor is there one which, being left to run its course, occasions greater agony, is more fearful to witness, or leads to more terrible results than spasmodic colic. A single dose of ether and of laudanum may vanquish the malady at the commencement; yet if the attack be allowed to progress, the fit may set all skill and remedial measures at defiance. The principal attention of the proprietor must be given to prevent the administration of the "groom's favorite" or other ignorant nostrums. The case, when properly treated, is cured for a few shillings; and a horse cannot be killed with decency for less money.

Besides, let any human being, having feelings capable of impression, regard an instance of spasmodic colic which has been aggravated by mistaken treatment; and as he views the fibers of a living body quiver, sees the frame bedewed in sweat and wrenched in mighty torture, contemplates the sad condition of the companion of his pleasures, and hears vented from its throat sounds expressive of agony,—let him, having the

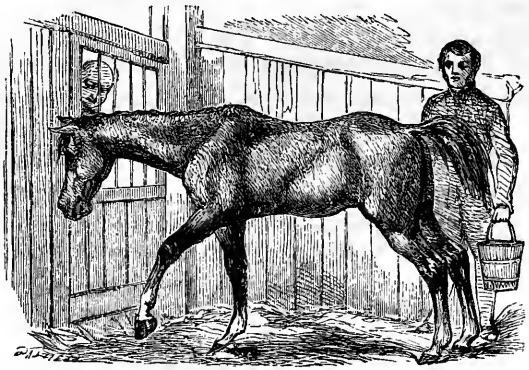
image present to his eyes, ask himself whether any man, possessing means at his command, has a right to make a money question of the creature's suffering, which exists in a state of dependence on his bounty.

Horses must be gifted with a certain amount of reason. However furious may be the attack of colic, the mute expression of anguish is quieted when preparation is made for the administration of medicine. The most nauseous drenches are swallowed with a patience that speaks a perfect comprehension of their intent. The most wonderful proof of reason is, however, given by the manner in which the horse will recognize the veterinary surgeon. The author has known animals, in the intervals of spasmodic colic, walk close up to him, look full into his face with an eye beaming with intelligence, and a strain upon the features as though the creature "did *so* wish to speak;" then finding utterance impossible, the nose has mutely directed attention to the flank.

Every assistance is, by the animal, afforded to him who displays a desire to alleviate its distress. Where language is denied, motives appear to be the more quickly comprehended; and he who wishes to mingle safely among horses, may best protect himself by treating them gently and sympathizing with their emotions.

FLATULENT COLIC, WINDY COLIC, TYMPANITIS, ETC.

This is peculiarly the affection of old age. Horses, though not so liable to hoven as are horned cattle, nevertheless may be blown out if permitted to gorge upon moist, green food. **Flatulent colic** in the vast majority of instances, however, is not caused by any special fodder, but



THE FIRST STAGE OF FLATULENT COLIC.

springs from disordered digestion; living for years upon stimulating diet, breathing a tainted atmosphere, being now weakened by a long fast, then distressed by a too abundant supply; next exhausted by a

tedious journey, and subsequently cramped by days of enforced stagnation,—all of these things ultimately tell upon the strong body of our domesticated quadruped. The stomach, as the earliest evidence of general debility, loses its tonicity. It cannot digest a full meal; the provender ferments, gas is released, and flatulent colic is the consequence.

A traditionary belief in the stable asserts this disorder is provoked by crib-biting, wind-sucking, etc. etc. The author is indebted to Mr. Ernes, a most successful veterinary surgeon of Dockhead, for the earliest comprehension of the impossibility that such causes should operate. Let the reader endeavor to swallow air; the mouth being deprived of all saliva, the attempt at further deglutition is fruitless; besides, to use the words of Mr. Ernes, "though the stomach or the bowels do contain a small portion of atmospheric air, flatulent colic is generated by carbonic acid or sulphureted hydrogen gas, the products of decomposition; either of which, if respired, destroys vitality."

The horse which is to be oppressed by flatulent colic exhibits uneasiness after feeding; it hangs the head; breathes laboriously; fidgets; rocks the body, and rests first on one leg then on the other. These

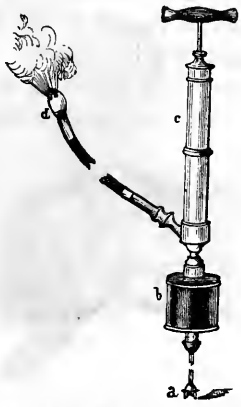
A HORSE DYING OF FLATULENT COLIC.

symptoms are exhibited before any enlargement of the abdomen is to be detected. With the swelling of the belly pawing commences; that action is, however, far too leisurely displayed to be for an instant confounded with the same energetic movement which characterizes spasmodic colic.

W. Percivall asserts that animals roll and kick at the abdomen during flatulent colic. Every fact requires to be respectfully considered which is recorded by so estimable a writer; but the author has never witnessed such symptoms in genuine flatulent colic. The horse will stand in one spot throughout the day; even the movement of the foot, before noticed, appears to be an exertion. The eye is sleepy, the pulse heavy, wind frequently passes from the body, and in such a condition the animal remains, slowly becoming worse.

Almost in the same place the horse may stand three or four days; then the abdomen is much increased in size; the animal is restless; the pulse is extremely feeble; the breathing is very fast; the pupil of the eye is dilated and the sight is lost. A walk as in a mill is commenced; obstacles are run into or upset; delirium begins; weak neighs are uttered in reply to visionary challenges; the coat is ragged; copious and partial perspirations break forth; the beat of the artery is lost at the jaw; an intermittent flutter is to be indistinctly felt at the heart. At last the limbs fail; the body falls; struggles ensue, and the creature dies in consequence of the distended abdomen compressing the lungs, thus preventing the breath being inhaled.

Relief should be afforded before the distress grows urgent; when the flatulence comes on without green provender being consumed, the chances favor recovery; even then, however, the gas may be confined to the stomach, which obliges entire dependence to be placed upon internal remedies. In the beginning, a ball composed of two drachms of sulphuret of ammonia, with a sufficiency of extract of gentian and powdered quassia, may be repeated thrice, half an hour being suffered to elapse between each administration. No benefit ensuing, one ounce of chlorate of potash, dissolved in a pint of cold water and mingled with two ounces of sulphuric ether, may, at the expiration of the time named, be horned down. After another hour, should no amendment be perceptible, two ounces each of sulphuric ether and laudanum, half an ounce of camphorated spirits, and one drachm of carbonate of ammonia may be given in a pint of cold water. Should no good effects ensue, in another hour throw up a tobacco-smoke enema by means of the machine here represented.



THE TOBACCO-SMOKE ENEMA. WORMS.

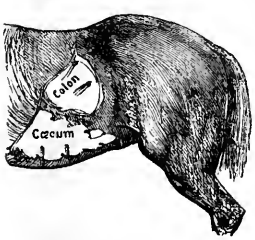
As a last resort, should the previous remedies prove of no avail, procure a stick of brimstone; light it and let it fill the place with the

sulphurous fumes which are the product of its combustion. However, mind that the air is not too strongly impregnated, though, at the same time, it should be so pungent as to allow a human being to breathe with difficulty. This last measure ought to be continued for two hours, at the end of which period repeat the remedies already recommended, resorting to each by turns; and do not fear being active, for flatulent colic becomes more difficult to remove as the period of its origin grows more distant. Should the affection appear to be approaching a fatal termination, and the size of the belly convince the spectator that the gas has entered the intestines, a desperate remedy remains. The situation where the vapor has accumulated may be ascertained by percussion; gently cut the skin which covers the abdomen on the left side, over those places indicated by white spots in the second engraving. A hollow sound will be emitted when the proper point has been struck; be certain of the last fact, as mistakes made in this operation are very awkward affairs. When assured, take a sharp-pointed knife, and, drawing the skin tight over the place selected, nick the integument slightly; then take a fine trocar and push it through the opening which has been made.

A TROCAR ARMED WITH A CANULA FOR PUNCTURING THE ABDOMEN.

This being accomplished, withdraw the stilet, and the gas should rush out with violence; be provided with a small probe to clear the canula in case it should become impacted. The gas being released, the abdomen is reduced; withdraw the canula and the skin will fly back, effectually excluding all atmosphere.

The gas, on rare occasions, will be generated a second time; therefore the points where other punctures may be made are indicated; for it is never well to interfere with those openings which in the first instance were instituted. However, should the operation have to be repeated, pull the integument in the opposite direction, so as not to disturb the original wounds into the abdomen.



THE PLACES WHERE THE ABDOMEN MAY BE PUNCTURED IN THE LAST STAGE OF FLATULENT COLIC.

Puncturing the abdomen for flatulent colic has been practiced both in this kingdom and in foreign lands; it is by no means a certain success, neither is it a certain failure. It assuredly requires boldness to perform it; but probably it is quite as beneficial and far more speedy in its effects than the great majority of medicinal remedies.

The duration of flatulent colic cannot be absolutely stated; it may continue for days, it may be cured in a single hour. However, should the abdomen be rapidly distended, then the termination will be sooner reached; but be the attack quick or slow, neither food nor water should be allowed during its continuance. The groom, while the disease lasts, should occasionally sponge out the eyes, mouth, nostrils, etc. Indeed, humanity would dictate such relief during every serious affection. Subsequent to recovery, feed for a few days on gruel and mashed oats; give a ball night and morning, composed of extract of gentian and powdered quassia, of each a sufficiency; of extract of belladonna and of sulphate of copper, half a drachm. Continue this medicine and the above food until the stomach has regained its tone.

Is flatulent colic a disease provoked by domestication? Certainly! The wild horse would have to travel for his food; in domestication it is placed ready gathered before the animal. Besides, the free animal being ever with his provender, the temptation to gorge the stomach would be absent; moreover, the untrained creature is protected by its instincts, which the care of man destroys. Little, however, is thought of this; the fact even may be unknown to the great majority of educated horse proprietors. The sense of repletion is no longer indicated with such force as to warn the stabled animal. The responsibility thus cast upon the master has possibly never occurred to the mass of mankind. So entirely has the notion of any duty being due to the animal been ignored by society that, notwithstanding nature in the above fact asserts the obligation, its announcement most probably will be received with laughter.

CHAPTER IX.

THE URINARY ORGANS—THEIR ACCIDENTS AND THEIR DISEASES.

NEPHRITIS OR INFLAMMATION OF THE KIDNEYS.

The straddling gait is not peculiar to any one disorder. It denotes no more than the region in which the affection is to be sought; but it does not characterize any special disease. Therefore so general a trait is

THE GENERAL SYMPTOM WHICH ATTENDS ALL DISEASES OF THE URINARY ORGANS.

placed at the head of the chapter treating of ailments confined to the urinary organs, so that he who perceives the horse assume this position may at once recognize that part of the body in which the disorder resides.

Nephritis is not so common at the present time as it used to be formerly; the growing information of the people has in some measure altered the practices of the stable. The master is not quite so much the slave of a groom's ignorance as was once universally the case; the animal is no longer regarded as a mysterious creature which it required a particular education to understand. Urine balls, therefore, are no longer regularly kept in every loft. Niter—one ounce of "*sweet* nitre," or, to speak correctly, an overdose of *harsh* saltpeter—may, however, be still permitted, and by particular horse proprietors regarded as a charm against every

ill. It is true that such a dose of a powerful diuretic is four times the strength which science would, under any circumstances, approve; but certain people in remote parts are happy in the conviction that an ounce of "*sweet* niter" can *possibly* do no harm.

The urinary organs of the horse must be little disposed to disease; they must be capable of surmounting a vast quantity of ill treatment. Were not ignorance thereby protected from the consequences which it provokes, half the horses in England would be disabled; inflammation of the kidneys would become the most common of equine disorders.

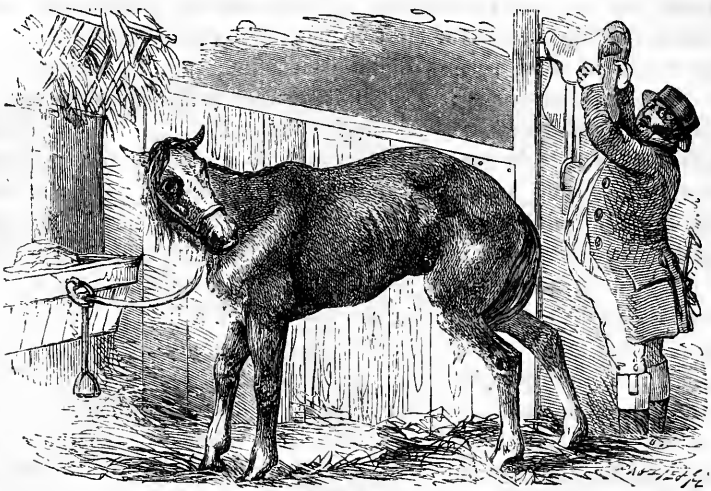
The horse has small need of diuretic medicine; it is much exposed in that direction. Every purge, should it not act as intended, passes out of the body by stimulating the kidneys; the ordinary provender of the animal may operate in the same manner. Foxy oats, kiln-dried oats, new oats; musty hay, mow-burnt hay, new hay; beans in particular conditions; grasses, when first in season, and water of any novel kind, will all operate energetically upon the renal glands; therefore the horse, in its ordinary food, will possibly imbibe more than a sufficiency of a most debilitating medicine; and the knowledge of such a liability may induce some men to withhold "*sweet* niter" from the future diet of the creature.

It may be necessary to inform men and masters that a horse needs rest when under the operation of diuretic, quite as much as when subject to the action of purgative medicine. It is never safe to take the horse from the stable while the animal is passing any unusual amount of water. Excess of secretion proves the eliminating organs are excited. Before any part can exhibit excitement, an extra quantity of blood must circulate within it, or it must be in a condition bordering upon inflammation. The urine is secreted from the blood by the kidneys; therefore before a greater bulk of water can be passed, of course more blood must flow through the glands.

The animal in such a state is not fit for work; every step taken brings into action muscles which pass directly under the kidneys, and which must, therefore, when contracted, compress those organs. During labor, in proportion to the force required must be the power of the contraction exerted by the organs of motion; in a healthy state, such exertion is not always free from danger. Excitement is, however, far from a healthy state. Then the glands are gorged with blood; being squeezed for an hour or two while thus swollen or plethoric, they are very likely to be bruised; inflammation may thereby be engendered, or renal abscess may possibly ensue.

Agriculturists are entreated to pause over the above statement. Such persons often possess a well-bred and promising colt. The farmer, however, is mostly uneasy until he has, according to his own notions, "tried

the beast." He may be a personable man, riding fully "eighteen stun." The colt, probably, would be taxed to carry a third that load. The "*sweet*-niter" dose is administered over night to take all fever out of the body; and, while the kidneys are excited, the animal is saddled, mounted, and ridden to the hunt. Everybody knows the manner in which most farmers ride. The horse may have a hard run and be kept out for a long day. On the return, a full rack and a heaped manger



A COLT BROUGHT HOME AFTER THE FARMER HAS TRIED "WHAT KIND OF STUFF IS IN IT," BY A HARD DAY WITH THE HOUNDS.

are placed before the overridden quadruped. Neither are touched. The saddle is removed and the back appears to be "queerly sticking up." The large full eyes are repeatedly turned round; and the renter of land is in doubt whether the creature is staring reproachfully at him or is simply inspecting its own quarters. However, with the apathy which too many agriculturists habitually display, the colt is left for the night. By the next morning the animal is ruined, even should it survive an attack of acute nephritis.

The symptoms of inflammation of the kidneys are a hard pulse, decidedly accelerated; quickened and short breathing, suggestive of pain; pallid mucous membranes; frequent looking toward the seat of anguish; head depressed; back roached; hind legs straddled, and the urine scanty. The animal almost refuses to "come round" in its stall, seldom lies down, and crouches beneath pressure when made upon the loins.

Subsequently, as the symptoms alter, pus or matter may subside in the water. It is indicative of an unfavorable termination should a fetid

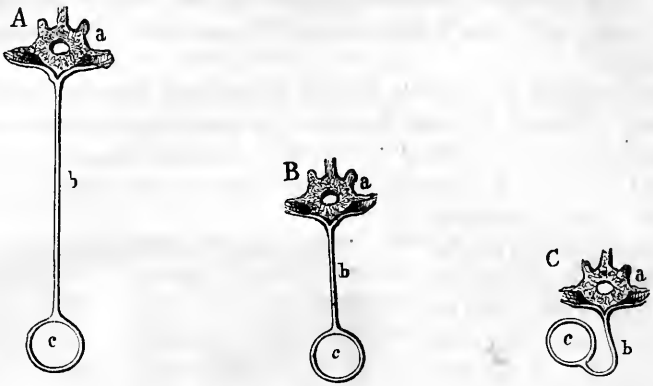
odor attend the secretion, and should it be deeply tinted by the blood. Death is generally close at hand when the pulse grows quicker but more feeble, when pressure elicits no response, when the body is covered with perspiration, and when a urinous smell is perceptible on approaching the animal.

The treatment of nephritis consists in applying fresh sheepskins to the loins. Should the case be urgent, a quantity of lukewarm made mustard may be first rubbed in and the sheepskin placed over it; or mustard poultices in any case may be employed and covered over to prevent them becoming dry, till sheepskins can be procured. Injections of warm linseed tea should be thrown up every hour, as these are the nearest approach that can be made to actual fomentation. Two scruples of croton farina, mixed with half a drachm of belladonna, may be given immediately in the form of a ball, the bulk of which should be made up with crushed linseeds and treacle. One scruple of calomel, with one drachm of opium, may be sprinkled on the tongue every hour while the acute stage continues. A pail of good linseed tea should be kept before the horse; but as for more substantial provender, none is requisite during the agony of the disease.

THE TEST FOR NEPHRITIS OR INFLAMMATION OF THE KIDNEYS.

Should the slightest doubt be entertained concerning the nature of the affection, immediately insert the arm up the rectum. This intestine is anatomically spoken of as "a floating gut." It is suspended from the spine by mesentery or a loose fold of thin membrane, and, therefore, is easily raised or depressed. It is situated under the kidneys, and nothing consequently interposes between the diseased organ and the inserted hand but the pliable coats of the bowel and the fatty substances which immediately surround the glands. The hand is not conscious of the soft wall of the intestine which covers it. The motion is so free, and the fingers are so readily moved, that previous knowledge alone assures the operator his arm is within a circumscribed canal, and not located in a free space.

By inserting the hand and moving it gradually upward, an approach can be made to the immediate vicinity of the inflammation. Sensitive-



a a a. The spine. *b b b.* The mesentery. *c c c.* The rectum.
A. The extent to which the rectum may by very gradual force be depressed without injury to the animal.
B. The rectum, with the natural length of mesentery, when not depressed.
C. The rectum raised, showing that the mesentery is very pliable.

ness will be exhibited as the seat of disease is touched. Heat will also be felt. A fore leg should, however, be held up on the same side as the operator stands. Should the horse struggle violently and denote positive agony when the hand is approaching the region of the kidneys, the signs may be considered conclusive without attempting farther exploration. Should the animal remain quiet at first, nevertheless let the operator be cautious, as the too near vicinity to the inflamed part provokes resistance, which, in its utter heedlessness, is closely allied to madness.

A CERTAIN TEST FOR INFLAMMATION OF THE KIDNEYS.

Several reasons will suggest the point at which the hand should pause. In the first place, pressure cannot benefit a delicately-formed and a diseased organ. In the second place, the agony of the animal may endanger the safety of the operator. In the last place, anything approaching to downright resistance brings the muscles that pass under the kidneys into energetic action, which circumstance is by no means favorable to ultimate recovery

Many men can speak of the pain induced by affections of the kidneys. The torture consequent upon disease of an internal organ appears to be so excessive as at times to destroy reason in the human being. No

one can look upon a horse suffering from nephritis, without feeling that, in sensibilities at all events, the two creatures are alike. Sympathy has been interpreted to mean no more than a conscious similarity of emotion. Such a definition must be erroneous, or more sympathy would actuate man toward his slave. The life is devoted to the service of the master. The body is disabled before its time for the pleasure of mankind. The horse is such a slave as no words can express. It lives but to obey. Its master's whim is the animal's joy. It is happy to exist where and how its superior may appoint. Still there is no sympathy felt toward its tortures, no feeling evinced for its sufferings: its life is one long solitude, its death is the degradation of misery. Were man to read of some wild beast capable of such sincere docility, what pains would not be spent to secure so valuable a companion! The animal is beside him and it is disregarded; or its goodness is converted into the means for its mutilation.

The additional treatment of nephritis consists more in the food than in the physic; linseed, both the seeds and the infusion, may be given for the body's support. The best oats should be procured upon recovery, and the quality of the hay also should be attended to; as for physic, that is almost limited to belladonna and to aconite. Belladonna is administered mixed with four times its amount of opium, so long as the pain is acute.

Extract of belladonna	Half a drachm.
Crude opium	Two drachms.

Make into a ball with linseed meal and honey; give three daily while the symptoms require them; or, should the pain be excessive, administer one every hour.

The aconite root is intended to lower the circulation. When the pulse is quick and hard, a scruple of the powder may be thrown upon the tongue every half hour, till the beat of the artery soften, or till the animal appear to be affected by the medicine. The above measures are to be adopted without regard to the calomel and opium previously recommended.

A horse having survived one attack of nephritis, can scarcely, however successful may be the treatment, be restored to its original condition. The glands which have suffered inflammation must be left in an irritable state.

CYSTITIS—INFLAMMATION OF THE BLADDER.

This disorder is somewhat rare in the horse. Few cases have occurred; even those were not strongly marked. Besides the general indications present during nephritis, such as quickened breathing, accelerated pulse,

straddling gait, etc. etc., the most prominent sign concerns the emission of the urine. The bladder is irritable at the commencement; the kidneys have not secreted half a pint of fluid before it is violently expelled, and much straining, accompanied by sounds expressive of pain, follows the act. As the disease progresses, the bladder is contracted, and the water issues drop by drop, or as a constant dribble. This particularity marks the disease, which is also distinguished from nephritis by the roached back being absent; the spine rather being hollowed more than is usual in **cystitis.**

Most lecturers direct the student to insert the arm up a horse affected with cystitis and to feel the compressed bladder; this is easily accomplished, as the engraving demonstrates; but is the operation perfectly safe? White muscular tissue, when inflamed, becomes acutely sensitive. The bladder possesses a thick coat of that substance, and the hand, grasping an organ of this formation when in a state of disease, would probably torture the sufferer to frenzy. It is not wise to excite a creature commanding so huge a strength. There is, however, a test which yields as certain a response, and, at the same time, is far less hazardous. This consists in placing the hand under the flank and keeping it there till all the action which could be attributable to skittishness has disappeared; then press the abdomen, which, should it be hard and resistant, is a convincing proof cystitis is not present; for contraction of the recti abdominis muscles would force the contents of the cavity into violent contact with the inflamed bladder. Should any doubt be entertained concerning the condition of the muscle named, a little more pressure will soon ascertain the fact. However, let the person who applies the test be prepared for the consequence, as the application of pressure to a diseased organ provokes a sudden and energetic resistance, intended to strike the tormentor backward.

A DANGEROUS TEST FOR INFLAMMATION OF THE BLADDER.

The treatment for inflamed bladder and diseased kidneys is alike as regards the administration of aconite root, extract of belladonna, calomel and opium. The reader is, therefore, in some measure referred to the article upon nephritis; there is, however, a difference in application of counter-irritation by means of a rug doubled over a cloth, which last is saturated with strong liquor of ammonia diluted with six times its bulk of water; should this not be within reach, hot cloths retained under the belly are the next best application; but these require constant change

and a larger supply of heated fluid than most private establishments can command. Should both recommendations prove useless, then apply cloths dripping wet from a cold bath, and keep renewing them so often as they become warm.

A SAFER TEST FOR INFLAMMATION OF THE BLADDER.

The cause of cystitis is the same as produces many cases of inflamed kidney, namely, the abuse of medicine, or new and unwholesome food; blows likewise may induce it. Kicks under the belly, the too common mode of expressing impatience among carters, are very likely to provoke

APPLICATION OF THE AMMONIACAL BLISTER.

it. Horses are frequently seen in the streets of every town now whipped to make them proceed; then the rein jagged to command the animal to "stand still." Next the whip is again applied; afterward the animal's

belly is spitefully aimed at with the heavy boot of the countryman. The horses know not how to interpret these different signs: they become confused; they turn various ways, as if they hoped by such devices to please their chastiser. All is in vain! At length the animals burst into perspiration and shiver violently; by their alarm they are rendered stupid. But so disgusting an exhibition of folly and of cruelty on the part of the driver mostly creates small indignation in the wayfarers who behold it. The spectators generally look on with smiling countenances, and for the most part move onward without a word of displeasure or rebuke. To the human mind a man appears invested with absolute authority over the life which he has bought. So also no man risks reprobation, who keeps his animals upon poisonous provender. The hay, oats, and beans may be of a character calculated to engender disease. But has not the owner purchased the right to treat his property as he thinks proper? It is true, religion teaches that life is not in the custody of man, and that health is not at mortal command; but where horses are involved, all restraints appear to be forgotten, and mankind seem leagued together to inflict suffering on the dumb. For, is it not universally agreed that heavenly precepts were intended for man alone, and do not stoop so low as to include all the creatures the existence of which dates prior to the origin of the human being? Animals, according to modern interpretation, are excluded from the ample embrace of Christian charity. An all-merciful power looks down with pity only upon one inhabitant of earth!

SPASM OF THE URETHRA.

This affection is commonly designated **spasm of the neck of the bladder.** The part named, however, has no fiber capable of excitation; and it is difficult to understand how the elastic tissue at the opening of the receptacle can display a condition which is inherent only within the contractibility of muscle. The compressor urethræ muscle, however, being morbidly excited, is more than capable of preventing all discharge of urine.

The causes which provoke the spasm are not thoroughly understood. The affection is mostly attributed to some acridity existing in the food or water; else the supposed agent is said to be developed during the process of digestion.

The symptoms are: a widely straddling gait; total suppression of urine, or small portions forcibly ejected at distant intervals. The suffering attendant on distention of the bladder is sometimes so violent that the affection has been mistaken for phrenitis. At other times the horse has been imagined to be griped. Both these blunders are unpar-

donable. The haggard countenance, copious perspirations, and the frequent glances toward the flanks, joined to the straddling gait and to the desperate but at the same time guarded struggles, are all opposed to such conclusions. Were a proper examination instituted, the real nature of the affection would at once be made apparent, beyond the possibility of error.

Insert the greased arm up the rectum, and, when fully advanced, make pressure downward; the dilated bladder will then be under the hand. The best remedies are sulphuric ether and laudanum, which should be given in large quantities. Four ounces of each should, in a quart of cold water, be administered by the mouth: the like quantities, blended with three pints of cold water, ought to be thrown up as an injection. The last being given, the hand should be placed over the opening and pressed upon it for ten minutes. Should one dose not succeed, in a quarter of an hour the injection may be repeated. Again and again it must be had recourse to; till the spasm is vanquished or till the urine flows freely forth.

MODE TO ASCERTAIN THE DISTENTION OF THE BLADDER.

Should the horse be seized where no medicine can be obtained, then extract blood from free openings till fainting takes place. Several small depletions are very weakening, and a large quantity of the vital fluid drawn at different times is far less likely to overcome the disease than one full venesection. Open both jugulars: allow the blood to flow from both veins till the water rushes forth or the animal falls, when, insensibility being produced, everything like spasm disappears, and the bladder will mechanically empty itself. Should not such a relief ensue, the greased arm may be inserted up the rectum, and gentle pressure made upon the gorged viscus. Advantage is thus taken of the animal's insensibility to adopt a mode of relief which we dare not hazard while consciousness is retained.

CALCULI.

Stones within the urinary apparatus are designated by various names, that are derived from the situations in which they are found. Thus **renal calculus** represents a stone which has been discovered within the pelvis of the kidney. **Uretal calculus** implies a stone found within the tubes leading from the kidneys to the bladder; but calculi of this kind

are as yet unknown in the horse. **Cystic calculus** signifies a stone which resides in the cavity of the bladder. **Urethral calculus** denotes a stone which was detected within the passage leading from the bladder. Of these the cystic are altogether the largest, and the renal, at a considerable distance, rank as the next in magnitude. All consist of carbonate of lime or of common chalk, held firmly together by the secretion of the mucous membrane.

The symptoms which characterize renal calculus are not well marked. The urine may become purulent, thick, opaque, gritty or bloody. Exertion may provoke extreme anguish, resembling a severe fit of colic; but the attack is distinguished from genuine gripes by the back, during the pain, being always roached. However, the most decided symptom is of a negative nature; being the absence of stone in the bladder to account for the diseased urine. The inference is, moreover, strengthened if, when the hand within the rectum is carried upward, pain and alarm are elicited; or if pressure made upon the loins causes the animal to shrink.

Cystic calculus is denoted, as is the previous kind of stone, by certain conditions of the urine. Added to these general signs, the water, when flowing forth, will often be suddenly stopped, and every emission is followed by violent straining. Abdominal pains also are present; but the back is rather hollowed than roached. The point of the penis is, in particular instances, constantly exposed; and the horse, when going down hill, sometimes pulls up short, either to recover from torture or to relieve the bladder.

A CERTAIN METHOD OF ASCERTAINING IF THERE BE CALCULUS IN THE BLADDER.

The way to ascertain the presence of cystic calculus is to make an examination per rectum. Make the investigation with all gentleness. The foreign body may then be distinctly felt; even its size, form, and irregularities can by this means be discovered.

Urethral calculus is a small stone which, during the flow of urine, has been carried out of the bladder and is spasmodically grasped by the muscle of the urethra. The passage is effectually closed and great suffering is induced. Should the stone be impacted within the exposed part of the canal, the precise situation is easily told. Behind the stoppage the passage is distended by fluid; while before it all is natural. The calculus should be cut down and removed; the wound being afterward dressed with a solution of chloride of zinc—one grain to the ounce

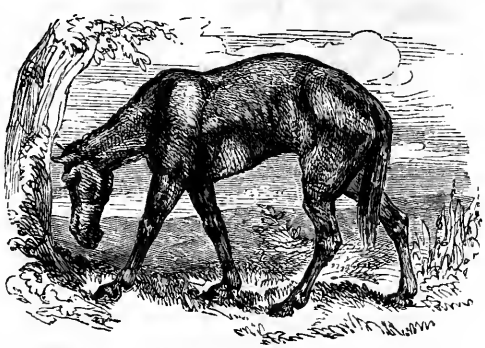
of water. This is an easy and by no means a dangerous operation Any person of ordinary skill having a sharp knife may undertake it.

For renal calculus little can be done. That little, however, consists in mingling two drachms of hydrochloric acid with every pail of water, and allowing the animal to imbibe as much as it pleases. Should the medicated drink be refused, the horse must be starved into accepting it. With this liquid, however, the stone must be small to be dissolved; but it effectually checks the further increase of the calculus.

Lithotomy is the name given to that operation by which large stones are removed from the bladder of the horse. It is far too complicated and too serious a proceeding to be entrusted to any general reader. No direction which possibly could be misconstrued shall, therefore, be attempted. When an operation is required for stone in the bladder, a qualified veterinary surgeon had better be employed. Mr. Simmonds, of the Royal Veterinary College, Camden Town, however, deserves praise for having invented an instrument by means of which stone can generally be removed from the bladder of the mare without resort to the knife being necessary.

HEMATURIA, OR BLOODY URINE.

The name fully characterizes this affection. The blood emitted may consist of small clots; it may congeal after it has left the body; or it may be entirely mingled with—giving a brownish tinge to—the water. Upon the exhibition of this disorder, always treat the symptoms first; when all chance of immediate danger has disappeared, examine the body to ascertain whence the hemorrhage proceeded, because in this affection the symptoms really constitute the disease; and when the first has disappeared, the last is cured.



A HORSE SUFFERING FROM HEMATURIA, OR BLOODY URINE.

The extent of the bleeding, of course, regulates the symptoms. When that is copious, the breathing is short and quick; the pupils of the eye are dilated; the pulse is not to be felt at the jaw; the head is pendulous; and the visible mucous membranes are cold as well as pallid. Lifting the head produces staggering; if continued, the animal would

fall. The back is roached; the flanks are tucked up, and the legs widely separated, as though the horse was aware of its inability to support its body.

The treatment consists in disturbing the sufferer as little as possible; in acting upon the report received, for in a case of this kind it is hardly credible there should be any mistake. Administer, as gently as it can be done, two drachms of acetate of lead in half a pint of cold water, or as a ball, if one can be delivered. If this has no effect, in a quarter of an hour, or sooner should the symptoms demand haste, repeat the dose, adding, however, one ounce of laudanum or two drachms of powdered opium. Give two more drinks or balls of the like composition; but should these be followed by no beneficial result, change the medicine after the administration of one ounce of acetate of lead.

When the indications are not alarming, the horse may be left for a couple of hours, with strict orders that the animal be watched, but on no account disturbed. Should, however, activity be required, obtain some of the coldest water, and have several pailfuls dashed from a height upon the loins. After this inject some of the same fluid, allowing the water to flow freely forth from the anus—the object only being to procure the advantages of excessive cold. For medicine, a trial may be made of the ergot of rye. Pour on to four drachms of the drug half a pint of boiling water, and, when cold, add one ounce of laudanum and four ounces of dilute acetic acid—not vinegar, as that always contains sulphuric acid, which would counteract the action of the lead. Two drinks, two enemas, (each lasting twenty minutes,) and any quantity of water upon the loins will serve for the second hour.

If these remedies have produced no change, all further treatment must be suspended for eight hours, at the expiration of which period the treatment may be resumed, and the previous measures repeated.

Should the hemorrhage have ceased, leave the horse undisturbed for the night. On the following day, if no blood has been noticed, have the animal gently led under cover. Then proceed to examine the horse per rectum. If the kidneys are not enlarged, hardened, or sensitive, and if the bladder is without stone, but of its natural thickness, there is every prospect of a favorable termination.

Should the bladder be thickened, adopt the treatment laid down for cystitis; if stone is discovered, an operation is indicated; be the kidneys disorganized, the case is hopeless. If none of these are present, then any of the following medicines may be experimented with, it always being uncertain which will prove beneficial:—

Extract of catechu	In one-ounce doses daily.
Strong infusion of oak bark	Three pints daily.

Alum	One ounce daily.
Sulphate of iron or of copper	One ounce daily.
Muriatic acid	Six drachms daily.

DIABETES INSIPIDUS, OR PROFUSE STALING.

In this affection, which, properly treated, is but a passing annoyance, the thirst is enormous; but more fluid is voided than the animal drinks. The strength and condition are quickly lost, while the flesh fades rapidly away.

Either the horse has been tampered with by the groom, or the hay, oats, or beans are unsound. A sudden change of water is said to produce the disorder; but that, probably, is far more a stable excuse than an established cause. However, change both food and water. Take into the stable two slips of blotting-paper. Dip the ends of them into some of the urine, which will always be retained in the interspaces of the brick flooring. Smell one piece. If it communicates a scent resembling violets, that is proof positive turpentine has been administered. Dry the other piece. Should that, when perfectly dry, and a light is applied, prove to be touch-paper, the evidence is conclusive: "sweet niter" has been secretly given to the animal. Should both these tests fail, the groom is innocent, as other diuretics are unknown in the stable.

The horse should not be taken out while the prominent symptom lasts; it is languid; is unfit for work or even exercise. No brutality can quicken the body when the vital powers are exhausted; but inattention to the suggestion of mere humanity may change a slight and temporary evil into a severe and critical disorder—nephritis.

A pail of good linseed tea, made by pouring boiling water on whole linseeds, and afterward allowing the infusion to stand till lukewarm, should be constantly before the manger. The animal may drink according to the dictates of its condition. The linseed, when strained off and mixed with sound bruised and scalded oats, may be given as food. No hay or grass should be allowed. Attend to the grooming, although it is a sick horse and does not go out. Nothing relieves the kidneys more than the restored action of the skin. A ball may be given every day. It should consist of—

Iodide of iron	One drachm.
Honey and linseed meal	A sufficiency.

Or, should a drink be preferred, dilute—

Phosphoric acid	One ounce.
Water	One pint.

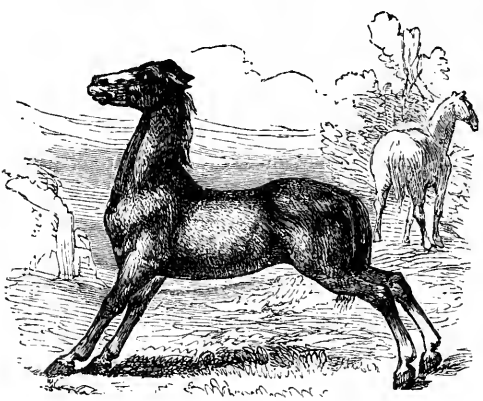
Give night and morning.

The author was once prepossessed in favor of iodide of potassium for the cure of diabetes. He is indebted to Mr. Woodger, the excellent practical veterinary surgeon of Paddington, for a knowledge of the very superior efficacy of the drug just named. It exercises a potent action over the kidneys, at the same time it is a first class tonic, and in a surprising manner reduces the desire for fluids. It is in all respects the exact medicine which could be wished for in a case of **diabetes insipidus.**

ALBUMINOUS URINE.

Two cases of this description occurred in the extensive practice of the late William Percivall, Esq. They are narrated in the admirable work entitled "Hippopathology," bequeathed to posterity by the estimable author. The present writer having been honored by the friendship of the gentleman named, is, from frequent conversations upon the subject, the better able to describe and to depict the disorder.

The positions of both horses were remarkable. One stretched the fore and hind legs out, as though it were about to urinate; the other roached the back and brought the hind feet under the body as far as possible. Turning in the stalls was, in each case, accomplished with difficulty; and the straddling gait remarkable in both, indicating the seat of the affection.



THE POSITIONS ASSUMED BY HORSES HAVING ALBUMINOUS URINE.

Some urine being caught by the groom, it was thick but clear—like melted calves' foot jelly—and, when cold, the surface was uneven. Bichloride of mercury being added to a portion of the fluid, caused a thick, colorless, opaque substance—resembling coagulated white of egg—to be thrown down, leaving a clear straw-colored liquor above the settlement. Another portion being first treated with acetic acid, afterward mixed with prussiate of potash and subsequently boiled, became in appearance like to milk. With time, however, a white sediment occurred, leaving the fluid perfectly clear.

Mr. Percivall's treatment was mildly depletive. He bled moderately, gave a laxative, and applied mustard to the loins for a brief space.

Perfect rest, strict attention to diet, and repeated doses of opium, constituted the after-measures. It is also mentioned that diuretics, tonics,

THE TESTS FOR ALBUMINOUS URINE.

A. The appearance of the urine when cold, being partially rough on the surface. Sometimes, however, the fluid is merely thicker than usual, appearing like water in which a portion of gum has been dissolved.
B. The white precipitate produced by the addition of a portion of the solution of bichloride of mercury.
C. Some urine to which a little acetic acid was first added. A portion of the solution of prussiate of potash was subsequently introduced. The liquid was then boiled, when it became thick, white, and opaque, like milk.

and stimulants were tried, but all proved injurious. Both animals ultimately recovered.

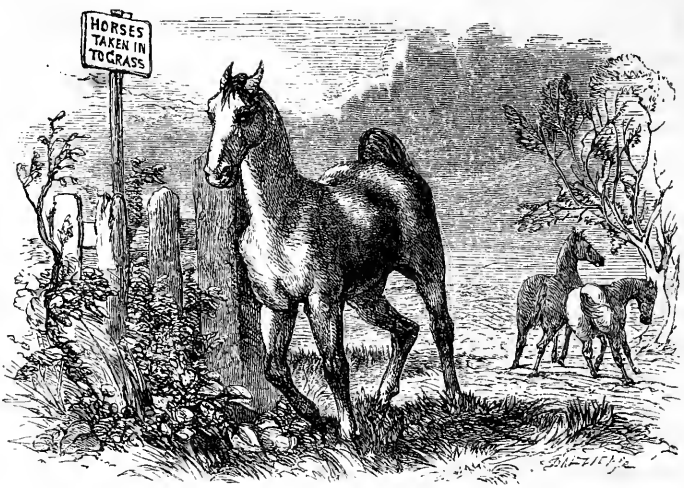
Those who desire ampler details are referred to "Hippopathology," by W. Percivall, published by Longman & Co.

CHAPTER X.

THE SKIN—ITS ACCIDENTS AND ITS DISEASES.

MANGE.

This troublesome disease, which is the itch of the stable, generally preys upon the poorly nurtured, the aged or the debilitated. Neglect is the almost necessary associate of poverty; loss of pride attends loss of means, for seldom can the spirit of man brave the frowns of fortune. The want of emulation is always seen most emphatically without the



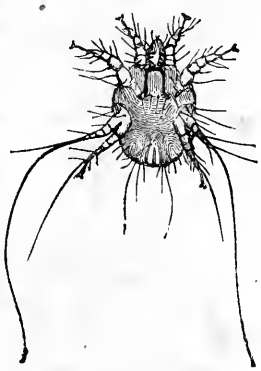
SYMPTOMS OF MANGINESS WHEN CAUGHT IN THE FIELD.

doors of the home; the garden denotes the failure of industry, and the stable languishes under an absence of activity. The grooming is avoided; the horse's food is proportioned to the master's means, and is not given at regular hours; coarse diet and a filthy abode generate that weakness which will assuredly breed mange.

The disease, once developed, is highly contagious; all horses standing near the one affected, all that may touch it, or the shafts to which it was harnessed, or anything that has been in contact with the contaminated body, are inoculated. The very robust, to be sure, may escape; but this circumstance is to be regarded as the most stringent test of actual

health rather than as the declaration of that state which the majority of mankind are pleased to term perfect condition. The animal which escapes must be of so sound a body as to afford no nutriment to the disorder which preys upon debility. Probably not one horse in ten thousand could resist so searching a test; the trial, however, after all, would be no more than a negative proof; and it is to be much regretted that science, up to the present time, has not discovered any means by which the presence of established health can be demonstrated.

Mange depends upon the presence of an insect which is classed with spiders, though to the uninitiated it looks, under the microscope, far more like a deformed crab. A representation of this parasite, very highly magnified, is here given, from Dr. Erasmus Wilson's paper upon the subject; and the reader may indulge his ingenuity by discovering its likeness to the spider.



THE MANGE INSECT.

The parasites are, when attentively searched for, to be recognized by the naked eye. Any man, by scratching the roots of the hair upon the mane of a mangy horse, may loosen a portion of scurf; let this scurf be received or cast upon a sheet of white paper. The paper then should be subjected to a strong light; the glare of the noonday sun is to be preferred, as warmth greatly influences the activity of the parasites. Numerous very small shining points may thus be seen moving about the mass in all directions. Those points are the insects, and, considering the easy means we now possess of demonstrating their existence, it seems astonishing that veterinary science was so long before it recognized the true source of the contagion. Even at the last moment, the sight was quickened by the research of a human physician, Dr. Erasmus Wilson; but after that gentleman soon followed Mr. Ernes, veterinarian, of Dockhead.

Mange would be far less general than it is, did not the convenience or the prejudice of mankind predispose them to favor a "run at grass." The horse there placed is all at once taken from a stimulating diet, while, the groom being relieved of his charge, foulness accumulates upon the coat. The animal, instead of standing still and feeding upon nourishing provender, has to travel far and to distend the stomach with a watery substance before the cravings of hunger can be appeased and satiety impress the creature with a consciousness that existence has gathered a sufficient support. The quadruped while at grass is necessitated to be eating the major portion of both day and night; little

leisure is left from the cravings of appetite for rest or for repose. No comfortable bed is placed beneath the jaded limbs. There may be an open shed under which all the inhabitants of the field are free to shelter themselves from the storms of autumn and from the colds of early morning. That building is, however, generally taken possession of by horned cattle, or by the victor of the steeds, and none but favorites are allowed to share the comfort of the tyrant.

It is assuredly true that the horse, in its primitive state, must have galloped over the plains free from human care and without a roof to harbor it. In a similar state man also must once have existed. The early Britons are described as walking about in painted costume, and as living on acorns and wild berries. Which of her Britannic Majesty's present subjects would like for six weeks in every year to return to the habits of our ancestors? The horse is even more artificial than man himself. It proves nothing, therefore, that the creature has existed upon the plain; any more than the possibility of rearing human beings apart from civilization can establish that the latter mode is beneficial to the body's development. Man has lost the desire for a wild existence. Then, why is the horse expected to be benefited by a return to the so-called natural state, although securely fenced from that freedom and extent of choice which primitive nature would have afforded?

Horses, when huddled together, often commit fearful injuries upon their companions. The creatures are unused to the society into which they are forced, and awkwardness is apt to be rude. Any want of manners in the heels of a horse is a serious business. But, to put upon one side so weighty an argument against the grass field, as foreign to the present subject,—all sorts of animals are there congregated. Some are turned out "to regain condition;" some to become "fresh upon the legs;" and some to live cheaply till their services are required. Others are allowed "a run," after some virulent disorder; and others merely to afford time for the eradication of obstinate disease. The pony, the cart-horse, the thorough-bred, and the roadster,—all are crowded together. All sizes and conditions meet as at a common table. Is it very wonderful, or much out of the scope of ordinary probability, if one of the creatures so exposed, so fed, and so tended, should engender mange? A few years back, the children kept at Yorkshire schools were much exposed to a similar affection. Those babes, however, had not been more accustomed to cleanliness than the horse, nor were they exposed to half the neglect which the animal at grass is obliged to endure. Is it then surprising that the lower creature should breed a disease like to that which afflicts the human being? Let mange appear in one, and the rest are prepared by exposure and unwholesome food to imbibe the disorder;

the contagion rapidly spreads; posts and rails are loosened or overthrown by horses rubbing against them; or, should such things be wanting, constant irritation instructs instinct, and the miserable animals scrub one against the other in the open space.

Besides the grass field, foul lodging or filth and poor provender will breed mange in the horse, as the same causes operating upon the human subject will engender a like disorder. It is sad to think that with the horse, as years increase, ailments accumulate and strength departs; it is sad to think, that as the animal's life becomes more hard to sustain, its food is always the less nourishing and its labor the more exhausting; that as care is necessary, so is neglect encountered; that the wretched quadruped at length is sold to some costermonger, who, when he makes the purchase, nicely calculates how many days of labor the emaciated life is capable of before it is turned over to the knacker. Many a nobleman must have looked upon an animal in the last stage of a weary life which was formerly the companion of his pleasures. The rusty, lean, and worn-out carcass most probably was not recognized, or how must reflection have whispered that power was not given to turn away existence into wretchedness after willfulness had rendered the body less capable of sustaining suffering!

In the vast majority of cases this disease first appears in the mane, among the hairs of which a quantity of loose, dry scurf is perceptible. Before such a sign, however, is to be recognized, excessive itchiness is exhibited. The disease, once established, soon extends to the head, to the neck, to the withers, to the sides, to the loins, and to the quarters; only in very exceptional cases are the legs exposed to its attacks. As the disorder proceeds, the hair falls off, leaving vacant places upon the body; these have a peculiar, dry, acrid, and irritable appearance; they suggest that portions of the body have been scorched with quick-lime, so irregular, patched, and scabby are the parts just referred to. The integument in these places greatly thickens and is no longer soft and pliable as a lady's glove, but becomes corrugated or thrown into well-defined folds.

The hairs, however, are not all removed; a few and only a few remain; these cling with exceeding tenacity to the surfaces which their fellows have quitted. The force required to pull out one of these remaining hairs is somewhat surprising, and the hair being extracted, the roots, upon close examination, will be discovered enlarged and far more vascular than is usual.

The above are the broad and more obvious indications of mange. However, should the diseased locality be more minutely inspected, a number of small pimples are discerned; these elevations are clustered

upon different spots. As they mature, the point of each contains a very slight quantity of gelatinous fluid; the vesicles ultimately burst; the contents exude and become dry through the absorption of the atmosphere, forming incrustations upon the surface. Add to this, the irritation provokes the diseased animal to scrub itself against any irregular, projecting surface which may be at hand. Raw places, frequently of magnitude, are often occasioned by the friction so rudely applied; from this source another set of crusts spring up. The places which are denuded, therefore, may present a very varied aspect, but still the parched appearance of the scurfy and dry skin affords the best external evidence of the presence of mange.

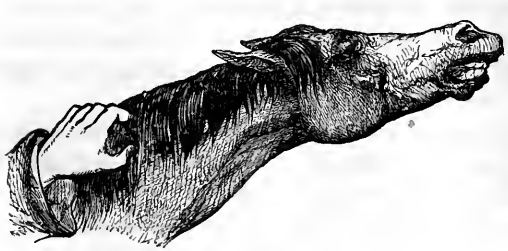
An animal, which from being gray in youth has grown white with age,

A MANGY PIECE OF SKIN.

THE HEAD OF AN OLD, MANGY WHITE HORSE.

still retains to its death the signs of its youthful color upon its skin. The integument is dark, although the hair may have lost the last vestige of its original hue; the checkered appearance established by mange gives to the white horse a particularly ragged and dejected aspect.

Unfortunately, man is not, at the present moment, sufficiently enlightened to recognize the symptoms which indicate an approaching attack of mange; but the animal energetically announces the malady so soon as the contamination is established. The disorder being confirmed, its existence is readily ascertained; the fingers have only to be inserted among the roots of the mane, and the part titillated with the nails. The horse thus treated will stretch forth the head and neck, will compose its features



THE TEST FOR MANGE.

into an expression of excessive pleasure, and will continue motionless so long as the hand remains upon the crest.

This sign, being witnessed, may be esteemed conclusive. Let such an animal be placed in the sunshine for an hour, should the weather permit; otherwise allow it to stand in the warmest house which is unoccupied; then have the coat thoroughly dressed or whisked, until all the loose scurf and incrustations are removed; afterward have the following ointment well rubbed in. Mind the man who whisks the horse goes near no other animal for eight and forty hours. See that every portion of the skin, from the tip of the nose to the point of the tail, is anointed; mark that no crevice or irregularity escapes, from the bottom of the coronet to the apex of the ears.

Liniment for Mange.

Animal glycerin	Four parts.
Creosote	Half a part.
Oil of turpentine	One part.
Oil of juniper	Half a part.

Mix all together, shake well, and use.

It is impossible to state accurately how much will be required to dress the horse—the disease, the coat, and the size vary so materially in different animals. About one pint and a half is, however, the general quantity employed for one application; every portion of the coat must be saturated, and in that condition the animal should be left till two clear days have expired. Thus, supposing the liniment to be used upon a Monday, it is left on until the following Thursday. Then have the surface washed with soft soap and warm water; dry the body and allow the animal to stand in a warm spot as before, so that every portion of moisture may evaporate. Afterward employ the whisk as has been previously directed; subsequently repeat the anointing. That operation must be again gone through for the third and last time after two clear days have once more expired, when the disease ought to be cured; all the insects should have perished, and the skin have been benefited by the stimulation to which it has been subjected.

There are many preparations employed to cure mange. All have some repute, though all (save that already given) are attended with some danger. The author, however, will recite two, at the same time warning the reader that neither of those which follow can be sincerely recommended.

Ointment for Mange.

Strong mercurial ointment	Three ounces.
Soft soap	One pound and a half.

Mix.

Wash for Mange.

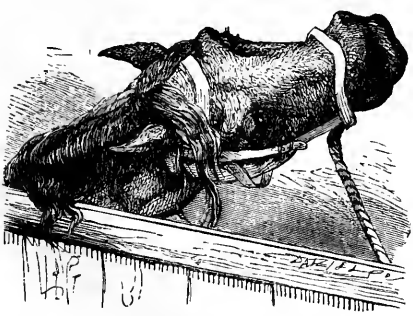
Corrosive sublimate	One drachm.
Spirits of wine	One ounce.
Tobacco (made into an infusion)	One ounce.
Hot water (which is to be poured into the tobacco)	One quart.

Dissolve the corrosive sublimate in the spirits of wine. Soak the tobacco in the boiling water. When cold, mix.

The question has been much debated, "whether man can derive the itch from an animal?" Imaginary proofs favoring the possibility are every now and then confidently promulgated; but all doubts seem to have been put to rest by the investigations conducted by M. Bourguignon. That gentleman demonstrated the unfitness of one creature to support the parasite generated by another. Horses may be violently irritated by insects bred by fowls; but, remove the birds, the supply ceases, and the irritation dies away. So an individual handling mangy horses may get some of the acari upon him and cause vexatious itching; but let the man keep away from the contaminated stable and the sensation is quickly lost. The repeated and repeated renewal of the pest gives a seeming warranty to the popular belief. Certain disorders assuredly are communicable throughout every species of life, as though to prove to the stubbornness of mankind that all nature is akin. Such are hydrophobia in the dog, and glanders in the horse; were all affections, however, equally interchangeable, the inhabitants of this world would speedily become one breathing mass of disease.

PRURIGO.

This affection may lead many a gentleman to imagine his horse has caught the mange; the leading symptom in each disorder is the same. Excessive irritability of the skin is, in **prurigo,** generally exhibited during the spring of the year; the animal will rub itself with a fury which often removes portions of the coat, but which never exposes the dry and corrugated patches that characterize genuine mange.



THE PROOF OF PRURIGO.

It is very annoying to behold the horse, when in the stable, scrubbing its neck upon the division to the stall; it is provoking to witness the animal leave its corn for the same

employment. It excites the fancy of the master and conjures up the dread of every cleanly horse proprietor; the symptom is, however, easily eradicated. It only denotes heat of body; let a portion of the hay be abstracted and a couple of bundles of cut grass be allowed each day; let a mash be given night and morning, until the bowels freely respond, and, without further measures, the annoyance usually ceases.

The irritation may not, however, subside so quickly as shall be desired; to hasten its departure, either of the annexed may be applied externally:

Washes for Prurigo.

Animal glycerin	One part.
Simple water or rose-water	Two parts.
Mix.	
Sulphuric acid	One part.
Water	Ten parts.
Mix.	
Creosote	One part.
Oil	Eight parts.
Mix.	

Either of these probably will answer, but the writer strongly recommends the first; at the same time it is well to try and reach the source of the disease, or to improve the blood. For this purpose the following drink should be given every night after the last meal:—

Drink for Prurigo.

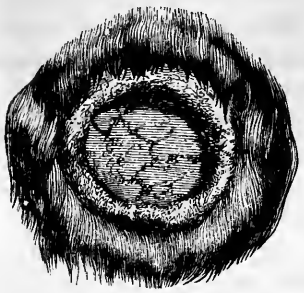
Liquor arsenicalis	One ounce.
Tincture of muriate of iron	One ounce and a half.
Water	One quart.
Mix, and give half a pint for a dose.	

A week after the irritation has subsided, all medicine may be withdrawn; but it is always well to see that a sufficiency of exercise be given, and to allow an extra feed of oats with a pot of porter every day. These last will restore the strength; for every form of disease is to be regarded as the most emphatic testimony of weakness.

RING-WORM.

This affection at first is simply a disfigurement; but, if neglected, it becomes a troublesome disorder. In the primary instance, the hair falls off in patches, leaving visible a scurfy skin; some say there are pimples under the scurf, but the author must confess he was unable to discern them in those cases which he examined. The scurfy particles, however, are somewhat large, and resemble, in no little degree, the scales which

form the bulk of bran. At first, these pieces or flakes of cuticle cover the entire surface; but ultimately they congregate upon the circumference, which, by their numbers, is made to assume a raised appearance. Should the **ring-worm** not be attended to, the outward margin at last begins to ulcerate, becoming the more difficult to eradicate in proportion to the time of its continuance and the extent of the ulceration.



A REPRESENTATION OF A RING-WORM ON A HORSE.

For the cure of ring-worm, a rigid attention to cleanliness is imperative; the parts should, at all events, be washed night and morning with mild soap, and hot, soft water; to the places—these having been rendered perfectly dry—one of the following preparations must be applied and laid rather thickly upon the denuded spot:—

Ointments for Ring-worm.

Animal glycerin	One ounce.
Spermaceti	One ounce.
Iodide of lead	Two drachms.

Rub the glycerin and spermaceti together, and, when thoroughly incorporated, add the iodide of lead, or use any of the appended:—

Nitrate of lead	Two drachms.
Simple ointment	Two ounces.
Mix.	
Oil of tar	Half an ounce.
Simple cerate	One ounce.
Mix.	
Creosote	Two drachms.
Simple cerate	One ounce.
Mix.	
Oil of juniper	One drachm.
Simple cerate	One ounce.
Mix.	

Besides the above, which are not one-half of the remedies in general use, some parties are loud in the commendation of a saturated solution of a sulphate of iron. Others are strongly prejudiced in favor of pure liquor plumbi; another class protest they employ nothing but compound alum-water, which invariably and speedily affords relief. There are people who regard a strong infusion of tobacco as a charm for ring-worm; while another set will hear of nothing for that purpose but hellebore ointment.

The author, however, has always employed the first preparation, which, in his hand, has never occasioned disappointment. It has, however, always been aided by the following drink, administered every night. No medicine could possibly act better than those here proposed; they seem to go directly to the skin; but as the state of the integument may be accepted as evidence with regard to the condition of the entire body, a most powerful alterative may not, in this instance, be out of place.

Drink for Ring-worm.

Liquor arsenicalis	One ounce.
Tincture of the muriate of iron	One ounce and a half.
Water	One quart.

Mix, and give every night half a pint for a dose.

This drink must be continued till every vestige of the disease has disappeared. However, it frequently happens that, after the central bare spot has been cured, ulceration remains about the circumference. Treat this with either of the following lotions:—

Permanganate of potash	Half an ounce.
Water	Three ounces.

Mix, and smear gently over the part six times daily. Or—

Chloride of zinc	Two scruples.
Water	One pint.

Mix.

The ulcers should be punctually moistened with the last preparation at the periods already stated, and the horse should be thrown up during the treatment. The food should be of the best, and a month ought to be allowed for the cure.

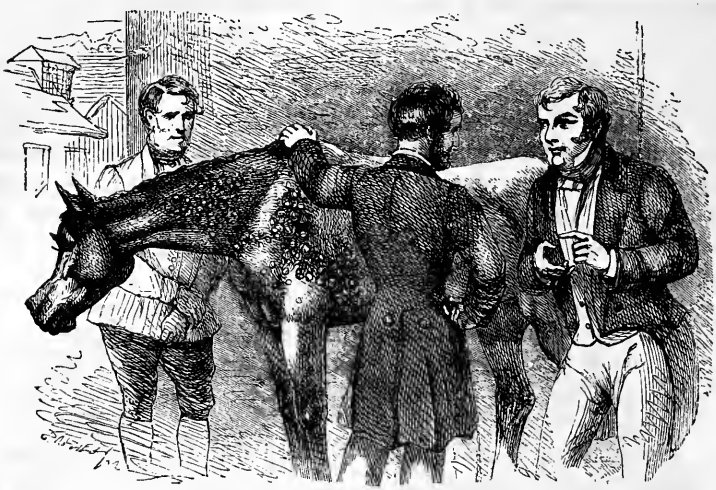
SURFEIT.

Old practitioners generally entertain very false opinions concerning the importance of **surfeit**; they being inclined to employ more stringent measures for its eradication than the real nature of the disease demands. The affection is rather annoying than dangerous; it makes its appearance suddenly, and seldom involves the entire body. It is a sudden rash or a quantity of heat spots bursting out upon the skin; the spots are round, blunt, and slightly elevated; they resemble the blotches which, during hot weather, often appear upon the human countenance, only the horse's integument being so much more active than the skin of man, the outward affection in the animal may be regarded as proportionably the more severe. Frequently, during the eruption, the pulse is tranquil, the spirit and appetite being good; when such is the case, the lumps mostly disappear in a few hours. Still the food should be looked to; about eight pounds of hay should be abstracted and two bundles of cut grass

allowed per day; the corn should be kept up or even increased, and a handful of sound, old beans, which have been properly crushed, should be mingled with each feed. The stable should be airy, and the following drink should be given every day for a month:—

Liquor arsenicalis	One ounce.
Tincture of the muriate of iron	One ounce and a half.
Water	One quart.

Mix, and give once daily, one pint for a dose.



A HORSE AFFECTED WITH SURFEIT.

Should the horse be young, and have been neglected throughout the winter, a surfeit sometimes appears which is of a different character. The lumps do not disappear; but an exudation escapes from the center of each. The constitution is involved in this form of disease, and the malady, if unattended to, is apt to settle upon the lungs.

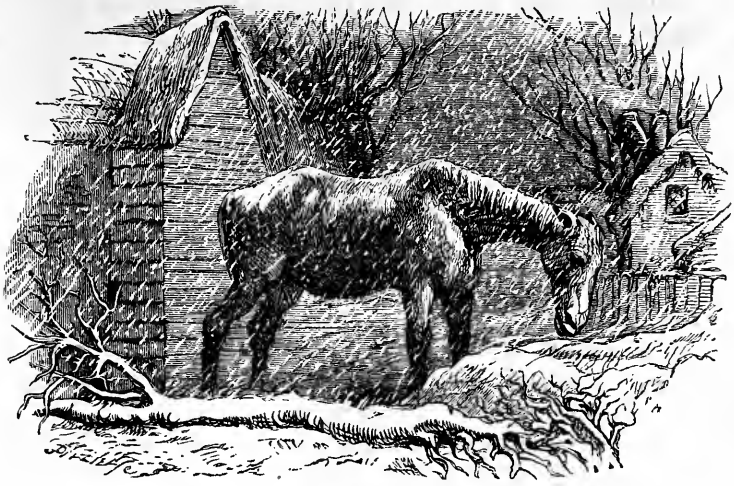
Should the attack assume the last appearance, on no account take the animal out, not even for exercise. Attend to the perfect cleanliness of the bed, and keep every door and window in the stable open during the day. Feed as directed for the previous form of surfeit, and allow two or three bran mashes whenever the bowels appear constipated; but do not give mashes after the constipation is removed. The desire is not to weaken the system by purgation, but simply to relieve the body; administer the drink recommended above only, giving one night and morning, but, should the appetite suffer, reduce the quantity, or withhold all medicine.

Clothe warmly; bandage the legs, and remove from the stall to a loose

box; if the pulse suddenly sink, two pots of stout may be given at different times during the day. If the appetite is bad, good gruel instead of water must be constantly in the manger; cut carrots, if presented a few at a time, will generally be accepted. However, with all such care, a very speedy termination is not to be expected; nature is casting forth something imbibed during a winter of neglect, and no art can quicken the process. The shortest cases of this kind mostly last a fortnight, during which time the treatment, and the entire treatment, merely consists in good nursing and in liberally supporting the body.

HIDE-BOUND.

Strictly speaking, the condition signified by the above term is not so much a disease as the consequence of exposure, of poor provender, and of neglect. Thrust a horse which has been accustomed to wholesome food and a warm stable, thrust such an animal into a straw yard and leave it there through the long and severe winter of this climate. Let



ONE OF THE CAUSES OF HIDE-BOUND IN HORSES.

the creature which has been used to have its wants attended to and its desires watched—let it for months exist upon a stinted quantity of such hay as the farmer cannot sell—let it go for days without liquid, and at night be driven by the horns of bullocks to lie among the snow or to shiver in the rain—let an animal so nurtured be forced to brave such vicissitudes, and in the spring the belly will be down, and the harsh, unyielding skin will everywhere adhere close to the substance which it covers.

Straw yards are abominations into which no feeling man should thrust the horse he prizes; and no feeling man should long possess a horse without esteeming it. The docility is so complete, the obedience so entire, and the intelligence so acute, that it is hard to suppose a mortal possessing a creature thus endowed, without something more than a sheer regard for property growing up between the master and the servant.

Every amiable sentiment is appealed to by the absolute trustfulness of the quadruped. It appears to give itself, without reservation, to the man who becomes its proprietor. Though gregarious in its nature, yet, at the owner's will, it lives alone. It eats according to human pleasure, and it even grows to love the imprisonment under which it is doomed to exist. Cruelty cannot interfere with its content. Brutality may maim its body and wear out its life; but as its death approaches, it faces the knacker with the same trustfulness which induced it, when in its prime, to yield up every attribute of existence to gain the torture and abuse of an ungrateful world.

Liberal food, clean lodging, soft bed, healthy exercise, and good grooming compose the only medicine imperative for the cure of **hide-bound.** The relief, however, may be hastened by the daily administration of two of those tonics and alterative drinks which act so directly upon the skin:—

Drink for Hide-bound.

Liquor arsenicalis	Half an ounce.
Tincture of muriate of iron	One ounce.
Water	One pint.

Mix, and give as a dose.

LICE.

These parasites are the consequences natural to the states of filth and debility. Insects, which have been mistaken for lice, sometimes infest large stables and almost drive the horses frantic with the itching they provoke. Application after application, intended to destroy lice, is made use of. Every recognized source of contagion is exterminated. Internal as well as external medicine is resorted to, but every endeavor to remove the annoyance signally fails. The horses are fat and feed upon the best; yet they seem to breed the parasites peculiar to the opposite condition. At last some one points to the hen-roost which leans against the stable. That building is pulled down, and with it the nuisance disappears.

It may to the reader appear strange that the application which killed lice did not destroy the insects derived from fowls. Those parasites

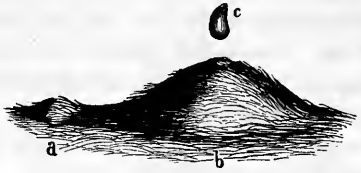
which were upon the horse doubtless perished; but the dressing being washed off, the pests came again and again, being supplied by the source of all the mischief.

Insects breathe through the skin. On that account, a hornet is more readily destroyed by dropping a little oil upon the exterior surface than by immersing the head in hydrocyanic acid. All, therefore, requisite for the removal of lice is smearing the entire body with any cheap oil or grease. But when the skin is washed, the business is not ended. Generally the horse troubled with lice is hide-bound, and may have various other affections derived from the debility which generated the parasites.

LARVA IN THE SKIN.

These annoyances are another result of turning an animal out to grass, the fly whence the trouble is derived never entering the stable. The insect rejoices in the freedom of the field; and man, by turning out his horse, finds the creature a fitting spot for the deposit of its eggs. This body is carefully deposited upon the back or sides. The warmth

a. The winter residence of the larva.
b. The summer abode of the insect.
c. A drop of tallow falling upon the center of the abscess.



of the animal hatches the **larva**; no sooner is it endowed with life, than, with the instinct of its kind, it burrows into the skin. The integument of the horse, however thick it may appear, is soon pierced by the active little maggot, which, thus snugly housed, retains its lodging until the following spring. During the winter, a small lump denotes its abiding place; but as the second summer progresses, a tolerably large abscess is instituted.

The interior of the abscess, of course, contains pus. Upon that

1. The spot through which the larva breathes.
2. The insect, full size.
3. The mouth of the parasite.
4. The pus surrounding the body, and upon which the creature lives.
5. The sac of the abscess.
6. The fat of the horse, or the adipose tissue much swollen and inflamed.
7. The skin.
8. The superficial muscle.
9. The muscle proper to the body of the animal.

DIAGRAM OF THE LARVA ABSCESS, DIVIDED THROUGH ITS CENTER.

secretion the insect lives and thrives. The inhabitant of a warm abode, and surrounded by its food, the early period of life no doubt is, for an

inactive being, highly agreeable. A division of one of these abscesses, when fully matured, is represented in the second cut, page 233.

Such swellings are acutely painful and prove the sources of much annoyance. They mostly occur upon the back. The saddle cannot be laid on one of these tumors; and, as the spine supports much of the harness, the proprietor has the vexation of beholding his horse rendered perfectly useless; for suffering, should service be exacted, occasions the creature to excite displeasure; besides, the pranks thus provoked by torture often continue after the cause has been removed.

Upon the summit of the abscess appears a black spot. It is at this spot the larva receives the air needed to support a dormant existence. This fact being known to certain people, the knowledge is employed to destroy the parasite. The swelling is first slightly greased, and then a drop of melted tallow is let fall upon the breathing place. By such means the insect is effectually suffocated, and assuredly dies.

Others employ a darning needle as the instrument of execution. The needle is thrust through the central spot into the swelling for three-eighths of an inch. The larva thereby is pierced, and the life certainly is sacrificed.

Neither method occasions at the time the slightest pain to the horse, and therefore may by some persons be esteemed highly humane; but, in the end, such plans of cure prove the very reverse. In either case the maggot dies; but the business, unfortunately, is only rendered worse by killing the source of evil. The dead body putrefies. A foreign and corrupting substance beneath the skin may enlarge the abscess to many times its original dimensions. After all, the system has to cast forth the irritating matter, and for that purpose inflammation, with its attendant fever, must be perfected. Much suffering is thus occasioned, and the proprietor is, for several weeks, forced to forego the employment of a valuable servant.

The safest, the surest, and the quickest manner of eradicating these parasites is, with the point of a lancet, slightly to enlarge the central opening, and then with the finger and thumb, applied on either side of the swelling, to squeeze out the intruder. The abscess rapidly disappears; and it only requires a few dabbings with the solution of chloride of zinc, one grain to the ounce, to close the wound. However, the best manner to avoid such annoyances is not to endeavor at saving money by treating a domesticated animal as though it were an untamed quadruped.

WARTS.

A **wart**, when of a fixed cartilaginous nature, should, in the horse, be eradicated immediately upon its appearance; being permitted to exist, such growths always increase in number and in magnitude. By certain people, or rather by a tradition, these excrescences are imagined to breed, or it is thought that one can produce many. That warts are possessed of any such inherent property science refuses to acknowledge; but the same system which has generated one may generate several. The faculty of casting forth such growths may even be encouraged by allowing them to remain; and it is possible that the slight shock occasioned by their removal may alter the tendency of the body. Certain it is that, by some mysterious law, nature refuses to build up only for human agency to destroy. Youatt asserts that it was once fashionable to crop the ears of horses until animals were ultimately born with the ears ready shortened.

A portrait of an extraordinary instance of warty disposition, showing the imprudence of permitting such accumulations to continue, is here given. The writer's experience cannot at all equal the disfigurement there represented; the animal was the favorite saddle-horse of a lady who could not bear the idea of the creature being put to pain. One wart first appeared upon the inside of the thigh; the motion of the legs used to chafe the excrescence, and frequent discharges of blood were the consequence. The growth increased in size, and three times was it "charmed." However, the cure, said to be potent over the human being, was inoperative upon the horse; housewife's remedies were next resorted to, but all of these proved equally unsuccessful.

PORTRAIT OF THE HEAD OF A HORSE WITH WARTS.

At length, smaller warts began to show; it would have been easy to have removed the original excrescence, but the numerous after-growths assumed a form which would have rendered them difficult to destroy. Many of them came with wide bases and slight elevation; to have attempted the excision would have almost necessitated the flaying of a living body. The remedy, which at first was easy, was by time rendered impossible; the horse being permitted to exist, could only see imperfectly. It could not move or feed without hemorrhage being provoked. The animal, of course, became useless; but still its kind mistress could not consent to its destruction. A country farrier, previous to the author

seeing the animal, had slit up one nostril to relieve the breathing, which before was much impeded. Of course nothing could be done for such an object.

There are three different sorts of growth, all of which are recognized under the term "wart." The first is of a cartilaginous nature and is contained in a distinct sac or shell, which last is entirely derived from the cuticle of the skin. Upon the sac being divided, the substance drops out, leaving behind a perfectly clean cavity, which soon disappears. Little hemorrhage and less pain attend upon this trivial operation. The second sort also is cartilaginous, but, unlike the first, is not contained within a cuticular sac. It adheres firmly to the skin, and is apt to grow large; sometimes it becomes of enormous bulk, when regarded simply in its character of a wart. The crown is rough and unsightly; the body is vascular, and the growth, from its magnitude and uneven texture, is apt to be injured, when it never heals, but invariably exhibits the ulcerative process in a tedious form. This species of wart is often to be found, though of a smaller development, upon the human hand. The third variety is hardly to be esteemed a true wart, and would not here be named, were it not universally accepted as one of these abnormal growths. It consists of a cuticular case, inclosing a soft granular substance.

It is impossible always to distinguish the first and third from the second; therefore, in a case of this kind, it is advisable to cut into the excrescence as soon as it is large enough to be operated upon. When the warts are ascertained to be inclosed in a defined cuticular shell, the quickest and the more humane practice is to take a sharp-pointed knife and impale them, or run the blade through each in succession. The edge should be away from the skin, and the knife being withdrawn with an upward, cutting motion, the sac and substance are both sundered. This accomplished, the interior is easily removed; and all that can subsequently be necessary is to occasionally touch the part with the solution of the chloride of zinc, one grain to the ounce of water.

When the growth proves of the fixed cartilaginous kind, no time should be lost in its removal. The quickest plan—and not, perhaps, the most painful method—of doing this is by means of the knife. The excrescence should be thoroughly excised, being sundered at the base. Some bleeding will follow. This may be readily commanded by having at hand a saucepan of water boiling on a small fire. Into the heated liquid a budding-iron should be placed, by which artifice sufficient heat is obtained to stimulate the open mouths of the vessels when the instrument is applied to the bleeding surface, without any danger being incurred of destroying the living flesh.

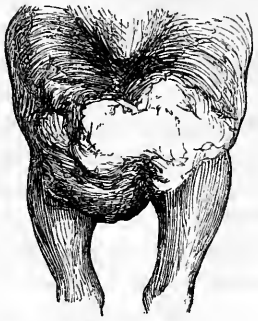
Should excision be objected to, the next best plan is the use of caustic. Strong acetic acid, only to be generally obtained as aromatic vinegar, is the mildest cautery; the next in strength is butter of antimony; after that, ranks nitrate of silver, or lunar caustic; and lastly, comes a preparation invented by Mr. Woodger, to whose perceptions the veterinary profession is so largely indebted. It consists of sulphuric acid, made into a paste with powdered sulphur, and applied by means of a flat piece of wood.

Whichever remedy is adopted, it must be remembered that the application will occupy time in exact proportion to the mildness of the means employed. It may also be proper to hint to the reader that, as an animal has no foreknowledge to alarm its anticipatory fears, and as, the anguish past, the mind of the creature does not linger upon painful recollections, probably the knife is to be very much preferred.

Some people remove warts by ligatures. To this custom the author strongly objects, for the following reasons: Because the process is slow; because the pain is great and continuous, till the removal is accomplished; because the ligature soon becomes filthy, the wart, when large, often turning putrid before it falls off; and because, when small, the breadth of base and the slight projection render fixing a ligature an utter impossibility.

TUMORS.

It is impossible to particularize the nature of every **tumor** to which the horse is subject, such formations being so very various. Seldom are two cases met with in which a precisely similar structure is developed. More seldom are two cases encountered located upon the same part. These growths are liable to every possible change. One may be very small, but extremely malignant, or of that kind which seems to resent the slightest interference. Employ the knife to this last sort, and incurable ulceration may start up. All remedies may be powerless and the life may be sacrificed. Such growths are, happily, rare in the equine species; but the author has heard of their occurrence, although it has not been his misfortune to encounter one. Another shall be of such enormous size as to impede the motions, yet will be perfectly bland in its nature. A portrait, not of the largest tumor which the writer has witnessed, but of the most awkwardly situated, is represented herewith.



AN ABNORMAL GROWTH UPON A HORSE'S CHEST.

It was not malignant. The horse which carried about this burden was brought to the veterinary college during the time when the author was attached to that establishment. The animal had previously been under the treatment of various veterinary surgeons. All had cut and cauterized the enlargement, but without reducing its magnitude. The wounds healed quickly, and the constitution appeared not to be in the slightest manner affected.

Why was not the swelling removed with the knife, when the kindly nature of the growth had been ascertained? For good and sufficient reasons. No operation could, with the slightest prospect of success, be hazarded. In the first place, nature is apt to resent the loss of so large a substance, or, in other words, although the surgery may be perfect, the life, from some unexplained cause, is likely to depart before the operation is finished. In the next place, most bland tumors, when of magnitude, are of a semi-cartilaginous nature, and spring either from tendon or from bone—usually from the latter. This tumor impeded the action; hence it was inferred that the substance ramified among the fibers of the pectoral muscles. Those fibers are large, and are divided; they present interspaces, between which the abnormal growth might readily penetrate. Now, unless every portion of the tumor were excised, the enlargement would sprout again, and the surgeon would be disgraced. To remove the pectoral muscle of a man, would be esteemed of little consequence, so that the life was preserved. But the limbs of the horse constitute the value of the creature's existence; and to disable these from being safely moved, would be to return a burdensome life to the proprietor. Therefore that which is compatible with human surgery could not be entertained in veterinary science.

A tumor may be small and soft, yet it must be respected. It may be hard, or even ulcerated and large, still its excision may be readily accomplished. The majority of these growths which appear upon the horse, however, are not malignant. Nevertheless, let every man consult some duly qualified veterinarian of experience before he resorts to measures which, possibly, may lead to the acutest regret.

One caution must be given before the subject is concluded. Gray horses, which have grown paler with age, or have become white, are liable to an incurable and malignant disease termed **melanosis**, which hereafter will be fully described. The presence of this disorder is generally testified by the appearance of some external tumor. Unless that enlargement be of great size and admirably situated for removal, it on no account should be interfered with. Let, therefore, every light-gray or white horse having a tumor be submitted to some experienced judgment, and let the owner be guided by the opinion he receives.

SWOLLEN OR FILLED LEGS.

These are one of the most common troubles of the stable; the coachman is very apt to complain piteously that in the morning he is sure to find such and such a horse with the legs filled. Commonly the hinder limbs below the hock are thus affected; sometimes the fore legs below the knee will be involved. The coachman mostly bandages the parts. In mild cases this resort may answer; but in bad instances the leg

THE HORSE'S LEG OF A NATURAL SIZE.

THE HORSE'S LEG WHEN FILLED.

above the bandage is apt to enlarge. The cloth or flannel, before applied, should be wetted; this, however, affords but a temporary relief; the wet often causes the hair to curl, and the uniformity of the appearance is thereby spoiled. After some time, the bandage frequently leaves its impress upon the leg, and it is astonishing how long in peculiar cases this impress will continue.

Swollen legs mostly occur in heavy animals and in overgrown carriage horses; such creatures are of weakly or soft constitutions. They have a vast tendency to become partially dropsical. Fast work exhausts the system of the carriage horse, while high food stimulates its natural disposition toward disease. With heavy horses, the prolonged hours of labor are equally debilitating, and the Sunday's stagnation generates disorder; neither have any innate hardiness to withstand injurious influences; both, when highly fat, have the weakness inherent to their constitutions greatly increased. The quadruped, loaded with the accumulations of many months' repletion, may please the eye of the master; but it is rendered more subject to disease, and less capable of labor or of activity.

Persons who require fast work, should employ light vehicles and small horses; the creatures should be principally supported by grain—a little hay may be allowed during certain times, when the animal's

attention requires to be engaged; but the chief sustenance ought to consist of oats and beans. When the carriage is not wanted for the day, care should be taken to see the groom gives at least four hours' exercise.

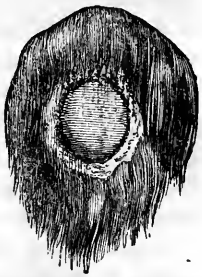
With regard to the heavy animals, the custom of blowing them out with chaff or hay is not to be commended. A good horse is surely deserving of good provender, and the best manger food is not generally deserving of any higher character than the word "good" may convey. A horse for work should be in sound flesh without being fat; when not required, it should not be allowed to remain in the stable all day. Who, however, ever saw a cart-horse being exercised? These animals have to stand in the stall of a heated stable throughout the Sabbath; the excuse is, that the creatures may enjoy a day's rest. But four hours' easy exercise given at different times, although it might occupy the time of the attendant, would assuredly greatly add to the comfort of the quadrupeds which he is paid to look after.

When a horse is troubled with swollen legs, take it from the stall and place it in a roomy, loose box; nothing more quickly removes this affection than easy and natural motion. At grass, dropsy generally attacks the abdomen; but the author has not heard of the legs being affected in the field, the limbs there being in constant action. Having placed the animal in a loose box, abstain from giving hay for some weeks; procure some ground oak-bark; having damped the corn, sprinkle a handful of the powder among each feed of oats. Particularly attend to the exercise; and should the legs still enlarge, do not allow bandages to be employed, but set both groom and coachman hand-rubbing till the natural appearance is restored.

SITFAST.

This, whenever it occurs, provokes great vexation. Generally it affects animals of the highest value or of fast capabilities, which are used only for saddle purposes. The affection consists of a patch of horn, resembling a corn upon the human foot. These patches are not absolutely large, though of course in size they vary. Neither are they all similar in form or in thickness. In one respect, however, a family likeness runs throughout the kind. They are not simple corns, but their different nature is shown by a margin of ulceration. The situation which they invariably occupy is under the saddle-tree. Their presence, of course, obliges the horse to be disused; and they are the more annoying, since there is no chance of these comparatively trifling ailments disappearing without treatment. The treatment, moreover, cannot be speedy. Whatever measures may be resorted to, time is necessary for

the cure; and, during this space, the proprietor sees his horse in high health and spirits, but is forbidden to mount it because of a petty blemish which, in his eyes, is perfectly contemptible.



A SITFAST, AS IT APPEARS UPON A HORSE'S BACK.

Sitfasts, though all said to be caused by the friction of the saddle, have several distinct excitants. The saddle is without life, and cannot of itself injure the quadruped. It is common to account for a sitfast by saying the saddle does not fit. Such may occasionally be the case; for a saddle, if badly made, will chafe the skin and produce a sitfast. But this cause is in operation less often than is imagined. A retired surgeon, whom the author had the honor of visiting at Reigate, wore a cork leg. That gentleman stated that, whenever the leg used to chafe the stump to which it was attached, he always considered his body was out of order. Medicine then was taken, and the symptom disappeared. We mortals refuse to think the horse ails anything unless the animal is alarmingly prostrated. All smaller ills are disregarded; yet that derangement of the stomach which caused the stump of a man's leg to become painful from pressure may, if not attended to, also cause the skin of a horse to exhibit a sitfast.

An awkward horseman is the more frequent source of the complaint. There are gentlemen so very energetic as riders that the best of saddles may be readily moved under them. The saddle must be well made indeed which can, under no circumstances, be stirred upon the back to that extent which is required to generate a sitfast. Loose girths will likewise establish the nuisance, and so also may the saddle-cloth whenever it is hastily put on so as to become thrown into a fold when the horse is mounted.

The speediest cure for a sitfast is the knife. The excrescence is quickly removed; and the wound, if treated with the solution of chloride of zinc, one grain to an ounce of water, soon heals. A more tedious plan of removal, and one not recommended by any proper feeling, is to rub into the sitfast, every night and morning, a small quantity of blistering ointment. Such is the usual direction; but the ointment may be applied, for some time, to a layer of compact horn, before the true skin or flesh beneath is affected. The unguent must therefore cover the perhaps ulcerated margin of the sitfast; and even then it is a tedious and a painful operation, not likely to improve the disposition of an animal which it is so desirable to keep free from every excitement.

While the sitfast is being operated upon, the bowels should be rendered pultaceous by bran mashes. Four of these per diem will usually

loosen the most constipated body in two days. That effect being gained, while the food is liberal and the animal is led to plenty of exercise, give one of those drinks, night and morning, which are tonic to the system, but seem to exhaust their virtue upon the skin.

Drink for Silfasts.

Liquor arsenicalis	Half an ounce.
Tincture of muriate of iron . . .	Three-quarters of an ounce.
Water	One pint.

Mix, and give.

GREASE.

This filthy disorder is a disgrace to every person concerned with the building in which it occurs; it proves neglect in the proprietor, want of fitness or positive idleness in the groom, and culpable ignorance or the absence of the slightest moral courage in all people entering the doors of the stable. It is one of those disorders which it is easier to prevent than to cure. By an ordinary regard to cleanliness, and by an average attention to the necessities of the animal, this taint may be avoided; wherever it is witnessed, it not only argues the human being to whom the building belongs to be in the lowest stage of degradation, but it also testifies to the sufferings endured by the poor creatures which are compelled to drag out life in such custody.

The **grease** is, in the primary instance, inflammation of the sebaceous glands of the legs; but it soon extends beyond the limits of its origin, and involves the deeper-seated structures. A white leg is more subject to the disorder than one of another color, and the fore limbs are almost exempted from the ravages of grease. The reason of that exemption is found in the greater proximity of the anterior extremities to the heart or to the center of the circulation. Consequently the vitality in the fore legs is more active, and the flow of blood much more energetic; hence the anterior extremities can resist that ailment which fixes with impunity upon the posterior limbs. Added to this, in the fore legs the vessels describe almost perpendicular lines, whereas in the hind members the arterial current is impeded by numerous angles; these conditions doubtless operate upon the health of parts, but, above everything else, ranks the fact that the front legs are not subject to the same external causes as are the members more backwardly located. The stalls are drained from the manger to the gangway; consequently all the contamination of the space in which the horse is confined flows toward the hind feet; there are, moreover, other reasons, which the intelligence of the reader will not require should be particularized.

Grease is banished from every decent stable; it may, however, be occasionally encountered in situations very much secluded; there yet remain places whence so foul a disgrace is never absent. The wretched animals which are employed in brick-yards, in dust-carts, and in drawing canal boats are hardly ever free from this loathsome disorder. These creatures labor incessantly, and are removed far from the wholesome check which brutality receives from public opinion; they are resigned to the mercies of men who, as a class, are certainly not the most refined, and are seldom inconvenienced by any excess of feeling. The places, not stables, into which the miserable quadrupeds are thrust can rarely be entered without the peculiar smell which announces the existence of grease almost overpowering the stranger. The fact is unpleasant to human sense, but it is only right that the probable effect upon the creature, which is doomed for the duration of its weary life to inhale such an atmosphere, should be considered.

Smell is perhaps the most acute sense with which the equine race are endowed; the horse can appreciate that in which the human being vainly endeavors to detect even the slightest odor. Not only is the scent far more acute than that of man, but the two beings have to be compared as regards their habits; the animal is most cleanly in its tastes. Flesh it abhors, and all fatty substance it shrinks from; men eat such things with appetite. Then, the human subject can dwell, and even labor, in a tainted atmosphere with comparative impunity. A quadruped may be forced to toil in such a place; but those who oblige the creature to do this kind of work know the certain consequences of the act. They buy cheap and old horses—animals which have suffered much, and have but a year or two longer to exist. Were younger or dearer quadrupeds purchased, in which an energetic constitution would render disease more malignant, and were such animals obliged to breathe such contamination, the loss in every way would be fearful.

There is, at present, a great fuss made about sanitary laws; but the attention of those to whom such subjects are confided seems to be engrossed by man and his excretions. No one yet appears to have imagined that the subject involves life in all its varieties; the horse cannot exist in the air which human lungs have exhausted; man cannot live in the atmosphere in which the horse has perished. The two creatures are not, therefore, entirely distinct; but the open nostrils and huge lungs of one horse can consume the oxygen which would support many men. Then, the dung of the horse, which is always exposed, gives off fumes only slightly less dangerous than those which emanate from the human body. Yet officers pry into alleys and into courts; they enter the habitations of the poor, and count the number of those who *sleep* in each

room. The impacted people are pointed to as the source of certain diseases, and society shudders as the medical report is circulated. No one, however, visits the stable; no one inquires whether horses *live* in the space which affords sufficient atmosphere to support existence; no one has yet traced disease in man as probably originating in the close and contaminated fumes of nearly every London mews. Still, if the overcrowded rooms of the poor merit an elaborate report as so very dangerous to society, may not the stifling and reeking condition of the stables deserve a passing comment in its relation to the same effect?

Cutting the hair from, and thereby exposing the hinder heels to the operation of cold and of wet is no unfrequent cause of grease. Such is a common practice with lazy horsekeepers when not stimulated by the proprietor's eye. In winter, when the legs most require warmth and protection, the heels are deprived of the covering which nature intended should protect them; and parts where the blood flows most tardily are laid bare to the effects of evaporation and of frost. When the animal returns soiled from work, most grooms will sluice a pail of cold water over the legs; the dirt is thereby washed off, but the legs are suddenly chilled, and soon become more cold, because of the moisture which they retain and of the evaporation which ensues; for very few stablemen, finding the appearance pleasing to mortal perceptions, think about the comfort of the creature which is principally concerned.

Sudden chill striking a part, and followed by gradually-increasing cold, will certainly induce congestion; the foundation of disease is thus laid. The better plan would be to instruct the groom that appearance is secondary to the welfare of his charge. Order the man not to mind about leaving his horses so very clean and tidy; never allow the hair, which grows long and luxuriant about the heels, to be cut off. Leave strict orders that, when the animal returns with dirty legs, the stableman is to take several wisps of straw and rub them until the surface is quite dry. The absence of wet will greatly add to the comfort of the horse, while the friction will increase the circulation and prove the very best preventive to disease. With the moisture, of course, much of the dirt must be removed; any which is left behind will readily fall out on the following morning, upon the hair being carefully hand-rubbed and combed. However, mind and see this is done, for it entails some trouble; and, if you are content with merely giving orders, the "old buffer's megrims" are sure to be laughed at and disobeyed.

Turning out to grass, especially during the colder months, when the wet is particularly abundant, and the bite peculiarly short, is another fruitful source of this affection. If a well-bred, aged animal, which has done its work, after a life spent under the protection of the stable and

in the enjoyment of its carefully-prepared diet, is, from mistaken motives, turned into the field, life may be prolonged, but it is at the expense of much suffering, with the almost certain visitation of grease in a virulent form.

The earliest symptom of approaching grease is enlargement of the legs, accompanied by considerable heat of the skin. If the animals be now observed, they will be seen to be uneasy in their stalls; the hinder feet are occasionally noisily stamped upon the pavement. Should the hair be examined, it will be discovered loaded with scurf about the roots, while one hind foot will be frequently seen employed to scratch the back of the opposite leg.

A HORSE SCRATCHING ONE LEG WITH THE OTHER FOOT—A SYMPTOM OF THE EARLIEST APPEARANCE OF GREASE.

Should these indications attract no attention, the hairs soon begin to stand on end or to project outward, as though each was actuated by a separate purpose, and each desired nothing so much as to avoid its fellows. At the same time, the part begins to exude a thick, unctuous moisture, from which the disease derives its name. This hangs upon all the hairs of the heel in heavy drops. It is an offensive secretion. It emits a remarkably pungent and a very peculiar odor, which, once inhaled, is never afterward to be forgotten.

Should no regard be now bestowed upon the sufferer, and should the horse be worked on despite the lameness which it now exhibits, the skin

FIRST STAGE OF CONFIRMED GREASE. EXUDATION.

THE SECOND STAGE OF CONFIRMED GREASE. CRACKS.

swells, while cracks, deep and wide, appear upon the inflamed integument. The lines of division ulcerate, sometimes very badly; a thin, discolored, and unhealthy pus mingles with the discharge; the odor grows still more abominable, while the wretched animal becomes yet more lame.

Should, even at this period, no proper remedy be applied to check the disease, the leg enlarges. Proud flesh, or fungoid granulations, sprout from the lines of ulceration. The granulations grow in bunches, and have a ragged surface. Often the masses are of great size, and shake, as though about to fall, with every movement of the foot. The points, from exposure, become dry and hard; their nature, from that of fungoid granulations, changes to a substance resembling horn, like which, they are without sensation. These bunches have been named "grapes," which they are vulgarly thought to resemble. The likeness, however, is very distant—the one being pleasant to look upon, the other forming a painful and disgusting spectacle.

THE THIRD STAGE OF CONFIRMED GREASE. HORNY BUNCHES WHICH ARE COMMONLY CALLED GRAPES.

However insensitive the points of the bunches may become, the limb itself, throughout the disorder, possesses a morbid sensibility. The gentlest touch occasions exquisite torture, and the animal will tremble lest the agony should be repeated. Upon the slightest impression, the leg is instantly snatched up, nor is it trusted again upon the earth until fatigue necessitates rest or till the cause of suffering has departed. Horses have even suppressed their urine, lest the fluid, splashing upon the seat of disease, should provoke any access of the infliction. Few greasy animals ever have a bed under them, the straw of which might arrest the liquid in its flight. Indeed, such a luxury might save them from one source of torture, but assuredly would start up another. The ends of the straw, pricking or even touching the disorder, would cause such agony as must occasion the animal constantly to stand in terror.

One peculiarity, witnessed during grease, has not been indicated in the above illustrations. It has been purposely omitted, because, though invariably attendant upon the disorder, it in reality forms no part of the malady, being only a sympathetic effect. The cutis is continuous with the coronet and lamina, which secrete the outward horn of the hoof. Any disease fixing upon the one, of course cannot but affect the other. The irritation which involves the skin of the leg, therefore, necessarily stimulates the growth of the foot. The hoof of a greasy leg, from this cause, often becomes of enormous dimensions; but this peculiarity has not been noticed, because it was desired to keep the attention of the reader fixed wholly upon the more immediate symptoms of the loathsome affection.

The remedy for grease is simple enough. Indeed, did not a sense of duty oblige it to be resorted to, the smell would, in the majority of per-

sons, induce it to be employed. In the first place, clip off the hair—if any remains to be cut off. The natural protector of the heels now can conserve nothing. It can only heat the skin and retain the discharge. This being accomplished, if the leg merely be hot and scurfy, have it thoroughly cleansed with curd soap and warm water. Then a cloth, saturated with the lotion for the earliest stage of grease, should be laid upon the inflamed integument. This should be removed so soon as it becomes warm, and another, also dripping, should immediately supply its place. Thus a wet, cold cloth should constantly cover the part till the heat is destroyed, or at all events is greatly mitigated.

For this purpose, two men are required, one to remove and the other to apply. Four old cloths will be necessary. These, when removed, should be flung over a line, so that as large a space as possible may be exposed to the cooling action of the atmosphere. There is nothing so disagreeable in performing this office as might at first appear. The active agent of the lotion is a powerful disinfectant and deodorizer. The first cloth removes almost all the fetor, and hanging the wrappers subsequently over the line effectually purifies the atmosphere. The part being reduced to a comparatively natural temperature, the after-treatment consists in renewing the cloths so often as the heat returns; and in otherwise moistening the limb with some of the subjoined lotion thrice daily:—

Lotion for the earliest stage of Grease.

Animal glycerin	Half a pint.
Chloride of zinc	Half an ounce.
Water	Six quarts.

To be employed after the manner already directed.

When the cracks, with ulceration, appear, the previous lotion is too weak to be of much service; but the same treatment must be adopted: only one of the lotions subsequently given should then be used:—

Lotion for the ulcerative stage of Grease.

Permanganate of potash or phosphoric acid	One pint.
Water	Six quarts.

Or—

Chloride of zinc	One ounce.
Creosote	Four ounces.
Strong solution of oak bark	One gallon.

Both to be used after the manner of the previous solution.

Should the spurious granulations have begun to sprout, lose no time in having the horse cast. Have near at hand a small pot, with a charcoal fire beneath it. Let the vessel be full of boiling water. Within the fluid, previous to the casting, insert several irons; then throw the

animal. With a keen knife excise the external bunches of proud flesh. As each lump is removed, much bleeding will ensue; therefore, before using the knife again, take an iron and lay it flat upon the raw surface. Should one not check the hemorrhage, return the first to the saucepan and apply a second. It is necessary to operate with as small a loss of blood as possible; for horses having grease are always old and debilitated. In this manner proceed till all the external growths are cut away. Then let the animal rise. Enough has been suffered for one occasion; more agony the exhausted system of the animal might not sustain. Besides, with every attention concerning the irons, the bleeding, generally, will not permit more to be accomplished.

One thing has been forgotten. When removing the fungoid excrescences, it is always well, for the comfort of the operator, to have the leg previously saturated with chloride of zinc; also to have a man, with a sponge and a quart of the solution, ready to bathe the limb as fresh surfaces are exposed. Subsequently wet the leg frequently with the lotion last recommended.

In another three days the animal may, a second time, be cast. The operation being again confined to the crop of growths which on the former occasion were exposed; all the previous directions should also be strictly carried out. After three days have once more been suffered to elapse, the horse, if necessary, should be thrown for the last time, and the knife once more employed. The after-treatment will depend much upon circumstances. If the ulceration predominates, employ the last lotion. Should the granulations appear likely to grow, make use of the first solution of chloride of zinc—only it should be double the strength which was originally recommended. When both ulceration and granulation appear equal, the first and last lotions may be alternated.

Such are the chief remedies necessary for the cure of grease. The other measures are: the removal to a loose box thickly bedded with refuse tan; the food should be liberal—old beans are now of every service; each feed of oats should be rendered damp, and a handful of ground oak-bark ought to be thoroughly mixed with it. For medicine, those excellent tonic and alterative drinks may be thus prepared, and given daily:—

Drink for Grease.

Liquor arsenicalis	One ounce.
Tincture of the muriate of iron	One ounce and a half.
Porter or stout	One quart.

Mix, and give one pint night and morning.

Chopped roots, speared wheat, hay tea, and a little cut grass, should it be in season, are all proper in this disease. At the same time, walk-

ing exercise is much to be commended. Motion quickens the circulation; but in grease it seems, in a manner which is not understood, also to allay pain. A horse having grease will be led out of the stable limping lame; but after an hour's exercise it may return walking firmly and almost soundly. After cleanliness, good food and medicine, nothing is so beneficial to grease as moderate exercise.

MALLENDERS AND SALLENDERS.

These names are to be traced to no derivation, but in their arbitrary signification they denote a certain condition of the parts situated on the points of principal flexion in either limb. **Mallenders** appear upon the back of the knee; **sallenders** are located in front of the hock. Both, in the first place, are scurfy patches exhibiting a roughened state of hair and suggesting considerable irritability. Either, if neglected, will degenerate into a troublesome sore from which a foul discharge will issue.

MALLENDERS, OR A SCURFY PATCH AT THE BACK OF THE KNEE.

SALLENDERS, OR A SCURFY PATCH IN FRONT OF THE HOCK.

With ordinary care they neither do much harm; but are rather regarded as proofs of idleness and as eyesores, than as actual diseases, to which importance they now seldom attain. For their relief it is essential to pay scrupulous attention to cleanliness; as, when the coat suffers from neglect, it is very probable the same cause may likewise influence the constitution. Therefore, always begin the treatment with the tonic alterative drinks described on the previous page; at the same time applying with friction a little of the annexed ointment thrice daily :—

Ointment for Mallenders and Sallenders.

Animal glycerin	One ounce.
Mercurial ointment	Two drachms.
Powdered camphor	Two drachms.
Spermaceti	One ounce.

Incorporate all thoroughly together, and apply as directed.

When the scurf, through neglect, degenerates into a sore, treat after

the manner subsequently advised for cracked heels. But in every case of this kind always begin the treatment with a change of stable attendant; for where certain diseases appear, these are conclusive proof that duty is neglected. No remonstrance, no chiding, can amend the habits of the groom, who has, from drink or other indulgence, lost pride in the stable over which he should reign supreme.

CRACKED HEELS.

This is, save where very wrong-headed measures are pursued, the affection peculiar to the cold and wet months of the year. Even during the inclement weather of the summer, however, the horse may, if badly managed, exhibit this form of disease. Should the hair, which nature with kind intention placed upon the fetlock, be ruthlessly cut away, the animal is thereby rendered liable to **cracked heels.** The wet very rarely penetrates that designed defense. When it does, the ample covering of hair falling over the skin prevents evaporation, and the moisture rather promotes warmth than causes any excess of cold. The dirt of the road always lodges upon the surface of the hair, and if the horsekeeper exercise only ordinary care it can never soil the flesh.

THE HEEL OF A HORSE IN A CRACKED CONDITION.

The liability induced by removal of the natural covering exemplifies the folly of those practices which have lately become so very fashionable as at the present time to be almost universal. But there has always appeared to exist in the human mind a restless desire to improve the beauty of the horse. Now the tail has been docked; then the ears have been cut. A short space prior to these amendments, the skin was tampered with to produce a star, as a white spot upon the forehead was termed. At the passing hour almost every man who owns a horse must have the body clipped or singed. The length of hair is given in this climate as a necessary provision. Nature never forms anything without its use; though man in his ignorance may not always be able to comprehend her intention. Were finer coats desired, it would probably be wiser to obtain them by warming the stable, increasing the clothing, and avoiding those long stagnations during which the animal has to remain motionless before street doors. A long coat is a defense against a cold winter; and unless man provides against the consequences of our climate, it is evidently flagrantly wrong to deprive a dumb creature of the protection which nature has bestowed.

Shortening the coat, if anywhere justifiable, is certainly most pardonable among hunters. Animals used for this purpose always have, or should have, plenty of attendance; these creatures also are mostly required during the autumn and early winter. Removing the coat certainly does stimulate the body. The horse assuredly is capable of greater exertion immediately after the deprivation. At the same time, however, a greater susceptibility to disease is engendered, and often the deprived animal falls a victim to man's fancy, notwithstanding all the care and attention which the hunting-stable can command. A burst and then a check, when a piercing wind blows from the northeast, invariably produces sad effects among the horses, especially at the commencement of the season. A gentleman who prizes the animal he rides should take it to "the meet" unclipped; and, perhaps, should the run be long, the quadruped may hold a better place at the death than horses adorned after the prevailing fashion.

The folly of the custom is shown in the animals attached to London vehicles. These horses are mostly wanted for spring service. The stimulant of the autumn is purchased at the cost of debility during the spring. The coat is shed the later because of the previous deprivation. When the summer hair is growing, the creature presents a very uneven and ragged appearance in consequence of the points of the new and the roots of the old coat being of opposite colors. The gentleman who, therefore, has his nag and carriage horses shorn of their natural coverings at the time when hunters are thrown up, beholds the objects of his pride deficient in animation and beggarly in aspect, while the animal that has been allowed to wear its native garments dashes past him in all the briskness of the season and the smartness of new apparel.

The question of clipping and of singeing is simply this. Do you require your servant's services all the year round, or do you want its utmost exertions for a comparatively short space immediately subsequent to the removal of the outer hair; and, at how great a hazard are you prepared to purchase your wish?

Were the legs of horses allowed to retain that adornment which nature gave, and were the parts not shorn of their shaggy beauty—were men not inclined to confound the different breeds of horses, and, because the thorough-bred has clean legs, to imagine the cart-horse can be artificially made to display members equally fine—were masters more resolute in resisting the selfish suggestions of lazy grooms, who love to have the bushy heels clipped—were the stable-keeper not afraid of doing his duty, but would go down upon his knees and rub the fetlocks dry, instead of drenching them with water, and then leaving them to chap in moisture and in cold,—were these things attended to, there is no reason

why cracked heels should not speedily become a thing which has been, but no longer is.

However, if animals are exposed throughout the wintry season, under the pretense of being placed in a straw-yard, the proprietor must expect to take the creatures up with some defect. The worst case of cracked heels the author ever looked upon, was produced after the last-mentioned method; the skin was much thickened and deeply marked by fissures. In places it had sloughed, and where the integument was absent fearfully deep ulceration was established. Fortunately, the absorbing process had reached none of those important structures which are situated about the heel of the horse; and the animal, after lengthened treatment, was cured.

For cracked heels, if bad, the animal must rest, at all events till the parts are improved. When slight, always wash them with tepid water and mild soap, upon the animal's return to the stable; dry them thoroughly with a soft leather; then damp them with the following:—

Wash for Cracked Heels.

Animal glycerin	Half a pint.
Chloride of zinc	Two drachms.
Strong solution of oak-bark	One pint.

Dissolve the zinc in water, then mix, and use thrice daily.

Should sloughing and ulceration have commenced, that condition claims the first attention as being the most dangerous.

Forbear all exercise while such a state exists. Throw up the animal. Allow it to rest in the stable. Give a few bran mashes or a little cut grass to open the bowels; but do not take the horse out even for exercise while such an unhealthy action is in existence. Ulceration is too dangerous and morbid a process not to be treated with every consideration; and it is far too irritable and painful a state not to necessitate perfect inaction for its relief. Apply the following to the heels:—

Wash for Ulcerated Cracked Heels.

Animal glycerin or phosphoric acid	Two ounces.
Permanganate of potash or creosote	Half an ounce.
Water	Three ounces.

Mix, and apply six times daily.

Upon the ulceration being arrested, the last prescription may be discarded, and the former recipe resorted to; with these, however, it is always well to attend to the constitution. A drink, each day, composed of liquor arsenicalis, half an ounce; tincture of the muriate of iron, one ounce; water, half a pint, should be given every night. This composition has been often recommended, but the author knows of none which

is more beneficially tonic to the general system, and which, at the same time, acts so directly upon the skin.

Stablemen are fond of urging various excuses to hide their disinclination for exertion. Thus it is common for such people to assert that the horse's heels cracked while the animal was out on a cold, a wet, or a windy day: this is nonsense. Stablemen, of course, do not desire the creatures which they look after to be exposed to that soil which it is their duty to remove; but nature, that ordained the climate, formed the animal to endure it.

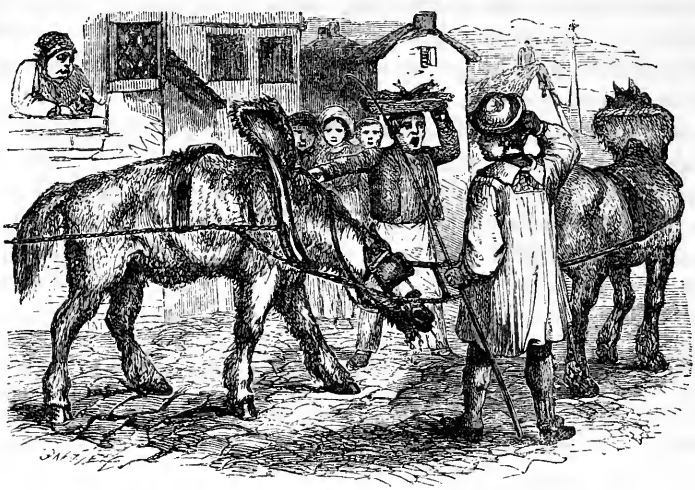
Were not the heels clipped, nothing short of extreme stable neglect could occasion those parts to crack. If the hair is removed, nothing but excessive good fortune will prevent this affection. The groom in the last case is not to blame, should the heels become sore. However, the best method of avoiding this affection, where the hair is cut short, experience has proved to be the following: Upon return to the stable, wash the feet scrupulously clean with cold water; then dry them thoroughly. Use several cloths to effect the latter purpose, and do not relinquish the object while the slightest moisture remains; nor cease to rub them until the parts are in a glow. Subsequently, smear over the heels a little glycerin; but even this will not in every instance prevent the affection. No care can render safe that which human folly has exposed.

CHAPTER XI.

SPECIFIC DISEASES—THEIR VARIETIES AND THEIR TREATMENT.

BROKEN WIND.

Broken wind in the horse approaches very nearly to dry asthma in the human being. Man, however, can suit his work to his capabilities; but all horses have only one employment, which, to be sure, may differ



CONVULSIVE SPASM, INDUCED BY FATIGUE, IN A BROKEN-WINDED HORSE.

in its intensity; still, the most afflicted animal always has to perform the severest kind of draught. Let any person propose that individuals having dry asthma should pull loaded trucks, to earn their bread or to purchase a right to live; the cruelty of such a proposition would be apparent to the dullest sense. Yet is it the horse's doom that, no matter with what disease it may be afflicted, the animal must work or die. Old or sick, weak or disabled, still the body's toil must earn the creature's food and the master's profit. Spasm or agony can excuse no pause; let the sufferer even slacken the space sufficiently to mitigate in some degree the pangs it endures, and the long whip, aided by the harsh voice of the driver, will urge the flagging cripple onward. The horse has no words to plead with; the signs of its distress are not understood; the law

which assumes to protect it is a delusion; the animal is given up, helpless, friendless, and unpitied, to the almost unrestrained barbarity of its master. It is born doomed to live in solitude, to wear its life out under the goad, and to yield up existence in a knacker's yard.

"Broken wind" is a sad affliction; it is the more sad because no men but the very careless or the very poor will keep an animal thus diseased. The author has known it to be a frequent reason given by the better class of horse proprietors for having the life destroyed; which decision may have been quickened by the fact that the horse is generally old before this disease appears. In the knowledge of the writer there is no recorded instance of a colt having "broken wind." The malady is usually witnessed after the adult age has been attained, or during the latter period of life, whether the affection has been naturally induced or aggravated by the cruelty of man.

It is said to have been produced suddenly; thus a man has been reported to have ridden an untrained horse after the hounds, and so have provoked the disorder. Another is asserted to have galloped a nag with a stomach loaded either with food or water, and thus to have broken the wind. Doubtless the seeds of the disorder may by either process have been sown; but that the disease was fully developed after either incident, is more than doubtful.

The seat of this affliction is not confined to any one organ; its ravage is universal. No part escapes; that the entire animal economy can change all at once, like a trick in a Christmas pantomime, is a circumstance which has yet to be established. The malady is most general among the agricultural districts; the farmer's poor team, in many parts of England, seldom tastes much of that which can be taken to market. Cut grass constitutes its chief summer food; the coat is rarely groomed; the stable often left open, and only cleaned when manure is wanted. During the winter months the animals have to luxuriate in the straw-yard; the body's abuse, in such horses, may readily lead to the body's degeneration. Green-meat will not support the strength, though upon it the life may be sustained. The occupiers of the soil would find it to their account, could the class be brought to bestow a little more attention upon their living property. The years of labor would be prolonged, and the activity of the laborer be quickened; fewer horses need then be kept, and the anxieties of the farmer would be lightened. Agricultural teams would not then be encountered slowly creeping along the highway, and sleeping as they journeyed. Care naturally begets pride, and worth generally resides where pride is exhibited. Increased value would reward the farmer, whose animals would not then so often present the spectacle of horses doing slow work, being touched in the wind.

Broken wind is evidently a disorder of slow and of long growth; any abuse may lay the foundation of such an affliction. Where abuse of life is possible, there folly is too often habitual; thus repetition may hasten the development of broken wind, but no one act could provoke so lamentable a consequence.

There is some dispute whether broken wind originates in the stomach or in the lungs. The mass of evidence would favor the opinion that originally it was a disease of the digestive organs; but, as the disorder proceeds, all parts of the body appear to be involved.

The symptoms of broken wind are a short, dry cough, which is described as "*hacking*," and which may be readily imitated by any person making a coughing noise while he withholds from enlarging the mouth, moving the lips, or employing the tongue, but at the same time endeavoring to pronounce the word "hack."

The cough arises from irritability of the larynx, the mucous membrane of which is directly continuous with that proper to the lungs, and is joined to that of the stomach, any disease of which organ is frequently accompanied by cough.

The appetite is ravenously and unscrupulously morbid; the thirst is insatiable; the flatus is most abundant; the dung is but half digested; the abdomen is pendulous; the coat is ragged, and the general aspect is dejected.

The leading symptom, or that which is looked for as indicative of broken wind, is found in the breathing. Respiration is accomplished by a triple effort: inhalation is quick and single, expiration is slow and double. The air is drawn upon the lungs as by a gasp. This being quickly accomplished, the ribs commence to expel the vapor, and move laboriously to their utmost extent without being able to effect the purpose. The movement of the chest and the inhalation are counted as two efforts. Then ensues the third. The abdomen begins to rise, with an evident desire to aid in emptying the lungs by driving forward the diaphragm, and thereby diminishing the capacity of the thorax. These two last efforts are comparatively laborious; but the double effort is only partially completed before a sense of suffocation forces the animal to gasp once more for breath.

There certainly are several circumstances which favor the opinion that broken wind is a disease of the digestive organs. In the first place, the great majority of broken-winded horses are to be found in those stables where the animals are badly fed; moreover, it is no unusual thing for a gentleman to turn his nag out to grass, or into the straw-yard, and to take it up broken winded. Then, again, low dealers, who frequent fairs and public houses, have a method of what they term "setting broken

wind;" this consists in pouring into the stomach various substances which cause the indicative symptom of the disease to be for a time concealed. Grease, tar, shot, and many filths are used for this purpose—anything which seems to induce nausea appears capable of producing such an effect. These things may conceal, but they cannot destroy, the characteristic cough; a copious draught of cold water, by refreshing the stomach, will induce the restoration of all those signs natural to the disorder.

Formerly there was very generally accepted a supposed cure for broken wind. The flatus is one of the most marked and troublesome symptoms of the disease; that, when coaches had possession of the roads, rendered a broken-winded animal unsuited to run in such vehicles. To master the objection, and also, by relieving the intestines, to enable the broken-winded horse to live through the pace, a hole was bored into the rectum from without by means of a heated iron; into this hole a leaden tube was inserted, and by that the flatus found egress without the outside passenger being unpleasantly aware of its perpetual escape.

For broken wind, prevention is far more easy than cure; in fact, the utmost which science can at present accomplish is to relieve the distress. To effect this, water should be given only at stated times, and never immediately before work. Four half pails may be allowed each four and twenty hours; one the first thing in the morning, another the last thing at night, and the other two at convenient times during the day. Into every drink of water it is likewise well to mingle half an ounce of dilute phosphoric acid, or half a drachm of dilute sulphuric acid.

Besides this allow oats and beans, five feeds each day, with only five pounds of hay; two pounds in the morning, when being dressed, and the remainder in the rack at night. Crush the oats and beans; thoroughly damp all the food before it is presented to the horse, and also scald the corn.

Remove all bed by day, and muzzle when littered down for the night. Place a lump of rock-salt at one end of the manger, and at the other put a block of chalk.

Such is the little science can propose for the alleviation of an incapacitating disorder. All other recommendations rather concern the owner than the stable. A horse thus afflicted should never be pushed hard or called upon for any extraordinary exertion. Fatigue, when severe, is apt to provoke alarming spasm; a spectacle which the author once witnessed, of an animal which had journeyed far, pulling a heavy load, is represented at the head of this article. The horse had only paused while the carter took his beer, and had received nothing but hay upon

the road. It had traveled all night, and it was still in the chains when the writer beheld it on the afternoon of the succeeding day.

After death, the body which has suffered from the disease declares the ravage of the malady. The lungs are larger than usual, and always pallid; small bladders containing gas are upon their surface, and when taken from their cavity the organs do not collapse as do the healthy lungs, nor can the air by compression be entirely driven forth. The hand being forced upon the surface elicits crepitation, or provokes a crackling sound, induced by the vapor passing out of one cell into another; for broken wind causes the terminations of the bronchial tubes to give way or to freely communicate one with another. Now, it is within these air-cells that the blood absorbs the oxygen from the inhaled atmosphere, and purifies itself by yielding up carbonic acid. How much must the destruction of their integrity, therefore, affect the entire body! Impure blood cannot nourish a healthy life; and the reader, after the above explanation, will easily account for the ragged and dejected aspect of the horse with broken wind.

The diaphragm is also disintegrated; the fibers of its tendinous portion are separated. The stomach is distended and thin; the bowels are enlarged and blown out with gas; the muscle of the anus is flaccid; the visible mucous membranes are of an unhealthy tint; the lining of the windpipe and the bronchial tubes is greatly thickened; the muscles are soft and deficient in color; and, where fat should have been, is only found a gelatinous fluid.

Having related the living and the morbid changes which characterize the malady, it remains now to inform the reader how so terrible a scourge may be avoided. The horse is so valuable a helpmate that it merits, for its own sake, man's greatest care. Never, for any reason, therefore, drive the animal from the shelter of the stable to the exposure of the field; never turn the steed which has thriven upon prepared food to the starvation of a "run at grass," or rankness of the "straw-yard." Never, for cheapness, buy damaged provender; never load a famishing stomach; be generous in all provision for those creatures which devote their lives to your service. Never, where such a thing is possible, permit the groom to ride or exercise the nag out of your sight. Be very attentive that the times of watering are rigidly observed. Never suffer an animal to quit the stable soon after it has drank or eaten. Be very

HOW TO HEAR THE SOUND MADE WITHIN THE HORSE'S WINDPIPE.

attentive to all coughs; accustom yourself to the sound of the healthy horse's windpipe, that when the slightest change of noise indicates the smallest change of structure, you may be prepared to recognize and to meet the enemy before disease has had time to fix upon the membrane.

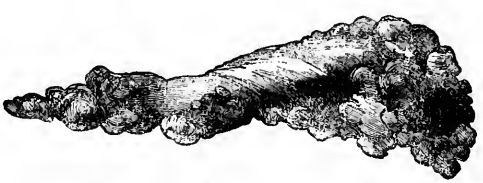
Having laid down the above rules, it may, to the ignorant, appear that every possible movement of the proprietor has been interfered with; that, in fact, the horse owner has been left no freedom of action. To the informed, however, it will seem that nothing more than every gentleman should observe has been proposed; and the horseman will smile when he learns that by such trivial matters can so heavy an affliction as broken wind be avoided.

MELANOSIS.

A quantity of black deposit, accumulated in large quantities upon certain parts of the frame, and contained within an increased amount of cellular tissue, constitutes this disease. At an early period swellings may be detected externally; they may be as small as a millet-seed, or as large round as a plate. These may remain dormant for years, or, if cut into before they start into activity, are almost white, and very glistening in parts, much resembling cartilage.

A MELANOTIC TUMOR DIVIDED, SHOWING THE INTERIOR IN THE MIDDLE STAGE OF DEVELOPMENT.

As time progresses, however, all the white disappears, and its place is filled by a material not unlike lamp-black when thoroughly incorporated with water. These growths increase both in number and in size. Should one be cut into after it is



THE SPLEEN OF A HORSE LOADED WITH MELANOTIC TUMORS. THE BLACK SPOT TOWARD THE RIGHT HAND REPRESENTS ONE OF THE GROWTHS DIVIDED.

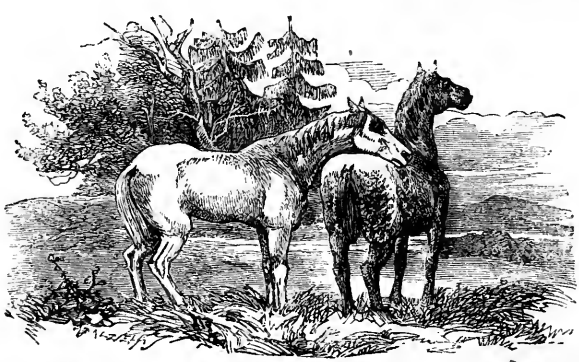
fully matured, an inky fluid follows the knife. The disease is not confined simply to external tumors; the coverings to nerves, the coats of arteries, and the recesses of the closest bones, are each found to bear minute evidences of a melanotic tendency. The deposit, however, seems principally to attack the internal organs. The interior of the sheath is not unfrequently clogged to that degree which forbids the passage of the

natural emission; while the preceding engraving of a loaded spleen by no means represents an extreme case.

A tumor should be admirably placed for operation, and its removal should be almost imperative, before the surgeon presumes to meddle with it. As a general rule, the best treatment for **melanosis** is to let it alone. Our present knowledge points to no medicine which can prevent or disperse such deposits, and the tumors appear to resent the slightest interference. The integrity of one swelling being violated seems to start off the disease with enraged intensity. If let alone, melanosis may exist for years, and cause little inconvenience to the body in which it resides. The horse is, by its daily service, exposed to various accidents. The large majority of the tribe perish before their youth has passed. The animal may, therefore, cease to live by other causes than disease, or die before disease has become formidable. But irritate the system by employment of the knife, and a lamentable malady may speedily render the knacker's office an act of charity.

Above all, let the master not permit any man to blister, seton, rowel, fire, stimulate, or slough out the tumor; such deeds are cruel folly. Bleeding is worse than useless. Purging weakens the body which disease is sapping. All medicines used in ignorance are probable hazards. Let such things, therefore, be discarded; but if something must be done, let the animal have daily an eight-ounce dose of any bland vegetable oil. Some linseed may likewise be mingled with the corn, or a decoction of the whole linseed may be presented as drink before the seeds themselves are given with the oats.

It is but natural to connect melanosis with the changed aspect of the



THE COLORED HORSES WHICH ALONE ARE EXPOSED TO MELANOSIS. TO THE LEFT IS THE OLD HORSE, WHICH HAS BEEN GRAY; TO THE RIGHT IS THE YOUNG ANIMAL, WHICH WILL WITH AGE BECOME WHITE.

skin. A young gray horse seems to be exempt; but as the dark hairs disappear from the coat, and the animal with age turns white, a black

deposit accumulates upon various parts of the body. Creatures of other colors are not liable to so terrible a scourge; and seeing that the disease is in some manner connected with a change in the skin, probably some attention to the integumental covering might be of service.

All use of the curry-comb should be forbidden. The dressing should be long continued, only with the brush; but it cannot, at the same time, be too gentle. Twice a week the body should be anointed with the following:—

Animal glycerin	One part.
Rose-water	Two parts.

Mix.

A brush should be moistened with the liquid, and the hair of the body should be rendered thoroughly damp, not wet, with the fluid. The after-dressing should consist in the long employment of the brush, so as to carry the glycerin from the hair and to lodge it upon the cuticle.

Glycerin has the peculiar property of destroying scurf; therefore, if glycerin be used, the curry-comb may be dispensed with. It likewise renders soft and moist the cuticle, which invariably becomes harsh and dry with age. Acting thus, it will, in the human subject, so far restore the color to the hair as to conceal the presence of the gray or white ones common to advancing years. The effect on one animal argues favorably for its action in another direction.

A dappled gray is perhaps the most beautiful covering in which bounteous nature could invest a graceful body. Creatures so clothed are usually the favorites of their owners, as well as generally the pets of the stable. Therefore the author may assert there are more than a few horse proprietors who would not bestow a thought upon any expense which could secure to them the services of their much-prized steeds.

When melanosis threatens, a tumor no larger than an egg generally appears upon some part of the body. It may show on any locality. It has no fixed abode. It is hard to the touch, and apparently devoid of sensibility. In this state the disease may remain for one, or it may continue stationary for six, years. When the next and the more active stage commences, the tumor suddenly enlarges. It becomes soft in places, and will fluctuate under the pressure of the fingers. The horse, at the same time, grows slothful. The tumor, which previously seemed in no way to affect the animal, by its enlargement marks the departure of all spirit. This sluggishness rapidly increases till the poorest owner becomes dissatisfied with the perpetual use of the goad.

The body, when opened, generally displays a condition which, from the outward signs, was far from expected. The internal organs are covered with tumors. Numberless morbid growths, of various dimen-

sions and in every stage of development, crowd upon every part. These readily account for that disinclination to move which characterized the latter days of existence.

There is one test for melanosis which does not invariably meet with a response, but which, when successful, seldom deceives. This is a pimple near to the root of the dock; it is very rarely of magnitude; there may only be one or there may be several, and the largest may not exceed the dimensions of half a pea. When, however, such an indication can be detected upon a gray horse which is turning white, the evidence is almost conclusive. The author does not know an instance, where it has suggested the presence of melanosis, that the post-mortem examination has contradicted the indication.

THE SIGN THAT TELLS OF THE EXISTENCE OF MELANOSIS.

With regard to the ultimate termination of this disorder, the author has no experience. Horses thus affected are always slaughtered when the second stage interferes with their utility; but, judging from the similarity of the disease in man and in the animal, it is conjectured the last stage in each would be alike.

WATER FARCY.

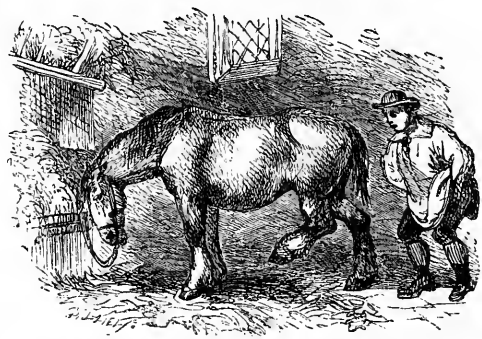
Water farcy, like so many equine disorders, is the offspring of weakness. Man, having a servant willing to work and incapable of complaining, too often proportions the toil only to the master's desire or the master's convenience. Many horses—which perform slow labor—are in harness eighteen hours out of the four and twenty; their rest is while the carter drinks, eats, and sleeps. No, not even can they enjoy such brief respite as is afforded by avarice to the laboring fellow-being; often is one of the drivers seen soundly sleeping on the top of the load which the stiff and jaded animals are compelled to draw. Thus the horse's toil is almost constant; wagoners are well aware that many horses sleep while in the shafts or in the chains. Overcome by fatigue, the animals doze, but continue to walk and to pull the burden onward. Who, knowing such a fact, can wonder that a living frame thus abused should often bow beneath its yoke, and, through death, set torture at defiance?

Water farcy is a warning which nature gives to human selfishness; it is, when rightly viewed, an intimation that, if the owner does not use the life intrusted to him more gently, the common parent will speedily take the sufferer to its rest. The complaint proceeds from debility; should the cause of exhaustion be continued, the affection soon changes

its character. Water farcy is dropsy of one hind leg; very rarely does the malady involve two members. Such is the form of the admonition; but the labor undiminished, or the dropsy removed by means of coarse and drastic medicines, the local affection speedily becomes a constitutional disorder; and true farcy releases an ill-used slave from custody of the tyrant who has abused his power.

Horses that are liable to water farcy are mostly of the heavy breed, or are animals which perform slow work. It is usual, on a Saturday night, for the driver to throw much provender before such creatures, and then to lock the stable door, satisfied he has discharged his duty.

Often he does not visit them on the Sunday; the creatures pass "the best of all the seven" confined in a close atmosphere, and eating food which they have contaminated by breathing upon. The man observes the day of rest himself, and takes his ease; for the "brutes" he has heaped up rack and manger—so they have to eat; what more can dumb animals require? Upon opening the door on Monday morning, he may see one horse with a swollen leg. The drudge generally, not invariably, is lame, and holds the enlarged member in the air; the coat stares; the aspect is dull; and much of the abundance which was placed before the animal remains untouched. The poor creature was too tired and in too much pain to eat; but agony has created a consuming thirst, and it will drink the foulest water.



THE CARTER'S FIRST APPEARANCE IN THE STABLE ON A MONDAY MORNING.

The horse doctor is sent for. In the opinions of veterinary surgeons there are two kinds of water farcy—one springs from debility, the other is accompanied with irritable symptoms. It, however, requires no vast knowledge of physiology to recognize debility and irritability as the children of one parent; indeed, most veterinarians admit the sameness in practice, however much they may dispute it in theory. They bleed, purge, and send in half a dozen diuretic balls, when, the swelling having been removed by such coarse measures, the horse, still further weakened, is once more put to its work.

Let every man who keeps cart-horses view a case of water farcy as a caution, proceeding direct from nature, that the management of his stable

requires immediate change. The work is too heavy; pecuniary loss will soon follow, if the system be not amended; true is it, the writer has known men rated "good" in the world's report, and who were very "professing Christians" in their own esteem; he has known these men never to give more than ten pounds for a horse, and, at the time of purchase, the premeditated sin was to work out the life over which money had established authority. It is the most offensive feature of what is termed modern civilization that, rarely as individuals, never as a society, do mankind entertain the slightest sympathy for the animals by which they are surrounded. Most men are only eager for the services of the horse; they do not regard its ailments with the smallest feeling; they seek a veterinary surgeon merely to restore their animal to labor, and care only for a fellow-creature's sufferings as these disable it from toiling for their profit.

Water farcy is, however, an admonition which all men should understand; the horse, when thus attacked, announces that farcy hovers over the stable. Let the work of the team be made less prolonged and less exhausting; let the provender be improved. Green food is no sufficient sustenance for a working horse; it may fill the stomach, but it brings down the belly, and it impoverishes the blood. The team may not travel fast, but they are out for many hours; generally they cover more ground than horses of a quicker pace; they also pull weights before which none but a cart-house would be harnessed. On the appearance of water farcy, therefore, let the distances be shortened and the loads lightened.

Then, for remedial measures, let the diet be nourishing, the bed cleanly, the house drained and airy. As for exercise, let the horse, so soon as it can bear the motion, be gently led out morning, noon, and night, for one hour each time. Do not turn the creature from the stable to the field. Grass may be the cheapest food; but it never yet did a domesticated animal good "to blow itself out" upon such a diet.

As for medicine, when the limb can bear friction, let it be well and often hand-rubbed; the oftener and the longer the better. Every morning saturate it with pails of cold water; wipe it dry immediately, and then set to work hand-rubbing the leg. This is all that is absolutely necessary, save that if the lameness continues longer than the first day, a few punctures may be made through the skin. These should be equally distributed, each being about three-eighths of an inch deep, and one inch long, so as to divide the skin but not to wound the muscles beneath. Through these incisions the fluid, by which the limb is distended, will escape. As for physic, the following ball should be given every morning, if the proprietor can think a sick servant merits such trouble and expense:—

Iodide of iron	One drachm.
Powdered cantharides	Two grains.
Powdered arsenic	One grain.
Cayenne pepper	One scruple.
Sulphate of iron	One drachm.
Treacle and linseed meal	A sufficiency.

Make into a ball, and give.

This should be made as it is wanted, for, by keeping, the ingredients become hard, and are apt, when given in that state, to cause injury to the animal.

By such slight and simple means, water farcy has generally been removed; but no delay should occur in having recourse to them, as some cases will set all endeavors at defiance, and delay is always dangerous where health is concerned. A few days of neglect will often permit the limb to become organized. It ceases to pit on pressure. Fibrin has been effused under the skin. The swollen leg is even harder than is the healthy member. Then the horse, should it escape true farcy, will carry about an enlarged member for the duration of its remaining life.

PURPURA HEMORRHAGICA.

This disease formerly was unknown, though at present it appears to be rather common. What is there can shut up the sight of man like ignorance? It is but fair to conclude that **purpura** was as frequent in past times as it now is; yet men, having professional zeal to quicken their recognitions, could not read what was before their eyes, because they had not been tutored to know and to understand it. It was so with our forefathers, and, we may not deny, it is so with the existing generation. Science begets an infatuation. Men, because they have learned much, imagine nature has no more lessons to enforce. At all events, they act as though such were their convictions; else why is it that genius every now and then startles pedantry, by widening the sphere of human perceptions?

A HORSE'S HEAD DEFORMED BY PURPURA HEMORRHAGICA.

The cause of this terrible affliction is a mystery. The horse has worked, fed, and looked well, when locked up for the night. The next day the animal is discovered breathing with difficulty, and having several parts of the body greatly enlarged. The creature appears, by the disorder, to be rendered stupid rather than insensible. It stands erect, but seems not to be acutely conscious of its condition. Not only are several portions of the horse's frame swollen beyond all recognition, but through the skin there

issues streams of serum fearfully variegated by the admixture of blood. The openings to the nostrils and the lips soon enlarge; then the tongue likewise increases in size, a portion of it hanging out of the mouth. The appetite is never entirely lost, though the affliction prevents deglutition. In this lamentable state the wretched horse may continue for several days, or the disorder may reach its termination in a few hours.

As the horse begins to recover, extensive sloughs occur, generally in those parts which have been much enlarged.

Recovery appears to restore the consciousness in some degree, and the life is prolonged at the expense of much suffering. The appetite remains. The power to eat is, nevertheless, slowly attained. The desire for fluids, however, appears to exist throughout the attack, and should be taken advantage of to nourish the patient, by presenting thin gruel in the place of water.

Purpura hemorrhagica is universal congestion. If the body of an animal which has succumbed to this disease be examined, the cellular tissue will be found distended with serum and with blood of a dark venous character. In this case, therefore, a blood-letting judiciously managed may be beneficial. No pulse can be felt, nor is any needed to guide the surgeon. So soon as the heaviness is ameliorated, the can is to be withdrawn, and the orifice is to be pinned up. The smaller the quantity taken the better, as the patient has no strength to spare. Should the congestion return, a second venesection may be imperative to relieve the vessels; such a resort, however, should be practiced only upon the conviction of its absolute necessity.

Mr. Gowing, of Camden Town, in two cases reported in "Blain's Veterinary Art," gave turpentine with success. Turpentine is, however, a potent diuretic to the horse, and therefore, the writer thinks, not the best diffusible stimulant in these cases. Preference would, by him, be given to sulphuric ether or to chloroform. Half an ounce of the last, blended with a pint of linseed oil, should be given in the earliest stage. Half an hour having elapsed, the dose may be repeated. No amendment being witnessed, discard the chloroform and administer two ounces of sulphuric ether in one pint of cold water. After a little space, as in the previous instance, more diluted ether may be administered, though it will seldom be required.

It is imperative to be speedy in adopting the measures intended to relieve purpura; for the disease rapidly attains its termination. For that reason, if the breathing is distressed, as is pretty certain to be the case, at once perform tracheotomy. Impure oxygenation of the blood is one of the most active causes of congestion; indeed, that state appears only possible during impeded respiration.

The tongue often becomes infiltrated, and, hanging out of the mouth, renders the appearance of the head most unsightly. It is, when thus enlarged, a fixture, and is in danger of being injured by the teeth. So soon, therefore, as the member is protruded, several free incisions should be made through its integument. The organ should then be manipulated, so as to cause the fluid to exude. These processes should again and again be had recourse to so often as they are required to return the tongue to the mouth.

The sloughing of the skin is a serious matter. It is treated by the solution of the chloride of zinc—one grain to the ounce of water—applied by being squeezed from a sponge on to the denuded part. This lotion will not only promote healing, but it will also destroy the fetor which results from decomposition.

After all, however, these cases are mostly very unsatisfactory. They would prove less so were tracheotomy more generally resorted to; but, in some instances, the horse seems to be rendered stupid by the disease. Instead of courting man's assistance and yielding up itself to his will, it appears to resent every effort made for its relief, as though all it desired was permission to die in peace. The beautiful resignation and the pleading solicitude for human sympathy appear to be lost. The brain evidently is affected; and when it is known the purpura hemorrhagica consists in universal congestion, no wonder will be expressed that an organ so sympathetic as the brain is affected during this disease.

THE HIND LEG OF A HORSE ENDURING PURPURA HEMORRHAGICA.

The condition of the animal suffering from this terrible disorder is indeed dreadful. If the brain be oppressed, the body is deformed out of all recognition. The beauty of the animal is lost, and the carcass becomes so misshapen as to be commonly compared to a hippopotamus. The legs share with the trunk the general disorder; and from these, as from other parts, blood and serum will exude.

STRANGLES.

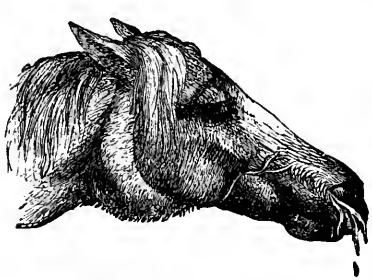
Strangles, in its effects upon the body of the horse, is similar to measles in the human being. Both are diseases peculiar to the young; both sometimes occur after the attainment of maturity; and both are dangerous in proportion as their advent is delayed. Both, also, are attended with evil consequence if driven inward, or if any irregularity warps the even tenor of their course.

Here, however, the similarity ends. Strangles is developed as an abscess under the jaw; measles appears as a rash all over the body. Both, however, are eruptive, and both are cast outward at some expense to the system.

Strangles is peculiarly the property of the rich man's horse. It is spoken of as relieving the body of some matter prejudicial to the after-health. The author has known several poor men's horses which never exhibited strangles. Those animals certainly seemed none the worse for escaping the disorder. Nevertheless, it may relieve the body of the high-bred and tenderly-nurtured animal of something which might prove injurious if retained, although every quadruped does not appear to need such a cleansing. And the man must have some extraordinary faculty who would enter a certain stable, and point out the creatures which had suffered and which had escaped the strangles. Still, it may be, and probably is, an effort of nature to adapt the body to a sudden change of circumstances, though whether these circumstances are natural or induced remains to be proved.

Highly-bred horses are cared for from the moment of their birth. Up to a certain period—varying in different parts of the country and in different animals—the colt is allowed to roam the field. All at once, however, it is taken up, and its education commences. From the dew, and from the grass under its feet and within its mouth, the colt is suddenly removed to dry food, and is imprisoned inside a hot and fetid stable. Nature rebels against such treatment. The strangles is the consequence, after which the poor captive becomes better adapted to its unnatural situation.

Strangles is ushered in by slight general indisposition, which, however, does not pass away. Sickness rather hovers over the colt than plumps directly upon it. The animal is then, in stable phraseology, "breeding strangles." After a few days, a stiffness of the neck is conspicuous; subsequently an enlargement can be perceived. It is, at first, very hard, hot, and tender. A discharge from the nose appears. The symptoms of general disease become aggravated. The throat is sore; the breathing is oppressed; the discharge is copious; the coat stares; the appetite is lost; the creature stands, with eyes half closed, the picture of mute distress.



THE HEAD OF A HORSE WITH STRANGLES.

At length the tumor softens. It becomes prominent at a particular

spot. Upon this place the surgeon makes an incision. A pint or more of pus escapes, and the animal quickly recovers.

Such is the history of a case of strangles, as the disorder generally develops itself. Of course it will vary in degree, though in every instance a sufficient similarity will be apparent to guide the student.

With regard to treatment: never purge or bleed a colt when it exhibits a dubious sickness. It may be "breeding strangles," and the strength then will be needed to cast off the disease. Give all the nourishment the animal can imbibe. If food should be rejected, whitened water, or *boiling* water into which some flour has been stirred, or thin gruel, is useful for that purpose. A little green-meat is generally relished. But, if the colt is not frightened at the approach of a stranger, the food should be offered, little at a time, by the hand—not forked into the rack or cast upon the ground, for the animal to breathe upon and then turn from with disgust. Corn, crushed and scalded, may be allowed, if it can be eaten. No grooming must annoy the feverish body; the clothing must be light; the bed should be ample, and scrupulously clean; the loose box ought to be large, perfectly well drained, with every door and window open during the day, and only partly closed at night.

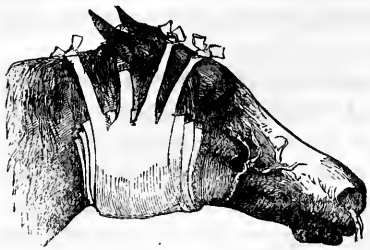
Some persons blister the abscess, and then apply a poultice over the blistered part: to this practice the author objects. In the first place, sufficient friction cannot be employed to insure the effects of a blister. In the second place, a blister is said to be endowed with the properties of bringing forward or of dispersing a tumor. In strangles, one of these processes alone is desirable, the dispersion being much to be dreaded. In the third place, though oil and water are in their natures antagonistic, yet water will creep through a coating of oil, and warm water, especially, thickens the cuticle. This action may possibly prevent the vesicatory from reaching the cutis, should the emollient be applied immediately after the blister. In the last place, the weight of the poultice is likely to stretch the cloth in which it is applied; when, being removed from the skin, the cold air of course finds its way between the poultice and the tumor. Cold is not desirable where we seek to promote suppuration; but cold is increased by damping a surface, and allowing it to be swept by a current of air. Evaporation then takes place, and the warmth is decreased by many degrees.

The writer prefers gently stimulating with the following mixture:—

Spirits of turpentine	Two parts.
Laudanum	One part.
Spirits of camphor	One part.

This may be applied, by means of what cooks term a "paste brush,"

morning, noon, and night, until soreness is produced. It will, at first, seem cool, and be grateful to the part. After every application, have ready three pieces of flannel—no house-cloth, no open and thin stuff, which some economical housewives presume to think is good enough for the stable, but soft, thick, and warm, new flannel, such as any feeling person would bind around a sore and inflamed part. Put these over the embrocation, and bind all on with a flannel eight-tailed bandage. An eight-tailed bandage is simply a long piece of flannel having three slits at either end. Its use, and the manner of applying it, is shown in the above illustration.



A HORSE WITH STRANGLES WEARING AN EIGHT-TAILED BANDAGE.

When the tumor points, the surgeon takes with him two assistants into the box where the horse is confined. One proceeds to apply the twitch; this twitch is an instrument of torture—it is a strong stick, having a short loop of cord at one end. The sensitive upper lip of the horse is grasped by the assistant's left hand, which has previously been thrust through the loop of the twitch. The loop is next slid over the left hand, and with the right hand placed upon the lip, while the fellow-assistant, by twisting the stick round and round, tightens, and thus pinches into a ball this most sensitive lump of imprisoned flesh; for in the upper lip of the horse resides the sense of touch—anatomy shows us it is more largely supplied with nerves than any other part in the body.

The attendant, who had first put on the twitch, gives the stick to his companion, and lifts up one of the animal's legs. The horse, with its attention engrossed by the agony of its lip, is rendered disinclined to motion, and is comparatively powerless while standing on three legs. The surgeon then takes an abscess knife, not a lancet, which is a coarse and clumsy instrument—the lancet simply punctures, whereas in an abscess more is desirable. A free opening is always wished for; and where living flesh is to be operated upon, it is, for very many reasons, preferable to do all the cutting at once. The knife is held lightly in the hand, with the thumb resting on the back of the blade. The horse, when it feels the incision, is apt, spite of the twitch, to drag suddenly backward. Thus it pulls against the back of the knife, and no injury can occur; whereas, with a double-edged lancet, an ugly and a dangerous wound has, by the motion of the animal, been inflicted. The thumb, in this situation, also serves another purpose. It allows only so much

of the blade to enter the abscess as is above the nail of the member—this is usually about three-quarters of an inch. The thickness of the skin, increased by disease, requires so much; and if not, the pus, accumulated beneath the skin, will save the more important parts from being injured.

The leg being raised and the head guided upward by the elevation of the twitch, the operator approaches the horse. He looks well at the

OPENING THE ABSCESS OF STRANGLES.

part he has to open, and mentally determines where to make his incision. He also ascertains the extent of the tumor. This is necessary; for if the swelling be to one side, a single incision will be sufficient; but if this extend (as is usually the case) from right to left, two incisions are requisite. In either case the surgeon seizes the left rein with the left hand, and, placing his right hand in a proper position, by a short and simple motion of the wrist the knife is driven through the skin.

The horse, during every operation, is usually blinded. Darkness invariably increases terror, and is unnecessary, since the horse cannot see what is being done under its jaw; nevertheless, the creature is obviously amused by watching the people about it. From the behavior, we have no reason to imagine the animal draws any conclusions. To blind the horse is, therefore, to increase to fears of excessive timidity. It is easily accomplished. Double a handkerchief into close longitudinal folds; then tie either end to the sides of the bridle, so that the handkerchief may rest upon the eyes, and the object is attained.

Every case of strangles will not be settled so readily. Occasionally the soreness of the internal throat will cause much annoyance. The animal is continually gulping its saliva. When it attempts to drink, the fluid flows back through the nostrils. The animal will not eat, and the strangles or tumor may threaten to be absorbed. In such cases the

food must be carefully prepared. No mashes, made by merely pouring hot water into a pailful of bran, stirring it round once or twice and splashing the mess into the manger, will now do. Even malt mashes will not answer the purpose. Good gruel must be carefully prepared and frequently changed. The drink must also be varied, so as to tempt the sick stomach,—as a general rule, equal parts of grits, (not oatmeal,) linseed meal, bean or pea flour, may constitute the ingredients. Let the drink be always just warm when placed before the animal. Sometimes clover-hay, or simple hay tea, may form the basis of the drink; sometimes one or other of the constituents may be withdrawn. Too much care cannot be taken of the horse at this period. Good nursing is now the most effectual, as well as the cheapest medicine; and all warranted expense at this time is a saving in the end. The breathing also is frequently most acutely distressed. In severe cases the symptoms are so alarming as to demand the immediate performance of tracheotomy. This the surgeon is forced to have recourse to, although at the time he knows it will only be temporarily required. When, though distressing, the disease is not of so fearful a character, relief may be sometimes obtained by mingling steam with the air which the animal inhales, and casting upon the source of vapor ten or fifteen drops of the etherial tincture of phosphorus. This last artifice may be renewed every quarter of an hour should it appear to afford even the slightest relief.

Avoid physic as much as possible. In strangles, purge and kill is the rule. Open the bowels, if it be imperative, by green-meat; if that should not answer, let them alone, however confined they may be. Let the fever rage, but do not potter with one drug and another "*to cool*" the body.

Some horses suffer terribly when they have strangles. The reasons for such a difference have not hitherto been ascertained; but doubtless science will one day discover them. In bad cases the tumor appears under the throat, but it is larger than usual, and longer in maturating than is customary. Tears, frequently mingled with pus, flow from the eyes; a copious discharge runs from the nose; the pendulous lips are disfigured by long bands of thick saliva; the coat is dull, erect, and rusty; the heavy lids close the sight; often the nostrils become dropsical; the breathing is fearful; the tumor presses against the larynx, and a roaring sound is audible at each inspiration.

A BAD CASE OF STRANGLES.

For this case no more must be done than was directed for the milder form of the disease. The animal may be gently

cleansed, but this office must be tenderly performed; for the filth will do far less harm to the horse than the provocation of irritability. Gruel, repeatedly changed, should always be within easy reach of the mouth; the pail should be hung upon a hook, so that the head may not be necessarily raised to reach the nourishment. A little of the sediment, strained from the gruel, should be placed in the manger, as some quadrupeds will only eat; others will only drink; a third class will be content with such nourishment as they can suck up from the more solid form of slops; a fourth may all but starve, yet no coaxing will induce the sufferers to look at aught but the dry, hard food, which they dare not swallow. Most, however, will feed on green-meat, and this should always be at hand. Should the animal become worse, tracheotomy may be necessitated. Then stout and treacle should be liberally horned down—half a pound of treacle being mingled with the quart of stout, and the whole mixed with a quart of good thick gruel. However, give at one time only so much as can be taken without distress being occasioned.

Such cases, bad as they may appear, are not to be despaired of; nor are the tumors, on any account, to be opened before they have thoroughly maturated. Hasty incisions may throw the abscesses back upon the system. When that is the case, real danger is provoked; the horse seldom thrives afterward.

In some instances the tumor will burst internally. It may find egress through the nostrils; but if it burst into the large guttural pouches of the animal, the pus may be there imprisoned until it becomes inspissated, and, by the motion of the jaws, kneaded into numerous distinct masses, resembling small sea-side pebbles. Such has been witnessed, but should hardly now occur; since Professor Varnell, of the Royal Veterinary College, has invented an instrument by means of which these cavities can be effectually injected, and even washed out.

Besides those varieties already mentioned, there is yet another form of strangles: that is, where no tumor appears beneath the jaws, but several form on other parts of the body. The greatest number of abscesses the author has heard of, being developed on one body, is seven. They generally contained about a pint of pus; and, if the direction given for the treatment of strangles be observed, the animal will usually recover upon these being opened.

The great danger of strangles is in the disease fixing upon any internal organ; the horse is of no use afterward. It sinks from bad to worse, till it resembles the illustration appended to "Chronic Indigestion." The best thing which can happen in such a case is the death of the wretched creature. To prevent so lamentable a termination to a

generally mild affection, nurse with every possible care, and begrudge no expense which can add to the comfort of the patient.

GLANDERS.

This is the most loathsome disease to which the horse is subject. It is provoked by stimulating food combined with exhausting labor. It was formerly very common in posting stables; long stage teams were seldom free from it. The London omnibuses, by night, are said to drive glandered horses, and the proprietors of those vehicles are reported to keep glandered stables.

In all of such cases the food is of the best and most stimulating description—twenty pounds of oats and beans with five pounds of hay, per day, are needed to keep a glandered horse in working condition. Gentlemen formerly used to fee the post-boy to "push along." We well remember the quivering forms of gasping flesh which were unharnessed whenever the old coach changed horses.

Omnibuses are very heavy; the constant stoppages make the draught still more severe. The animals which appear in front of these vehicles are small in size, rarely sixteen hands high, but the best and strongest their proprietors can afford. A little breed is desirable, as a coarse horse would lack the courage to take the collar and to persevere. The age of these horses is generally three years when first bought in. Some animals have worked through many seasons, but such instances are exceptions. Numbers annually yield to the drag upon the constitution. These are sold for what they will fetch. But several, either from weakness or some other cause which our science yet lacks perception to discover, annually become glandered.

Youth and high feeding, conjoined with excessive labor and damp lodging, will certainly produce **glanders**. Age, starvation, and ceaseless toil generally induce farcy. The glanders and the farcy, however, are one and the same disease, modified by the cause which originates them. Glanders is the more vigorous form of the disorder; farcy is the slow type, fastening upon general debility.

These disorders have been the scourges of horse-flesh. They still are the inheritance which man's willing slave gains by service to a harsh and cruel master. Men, to their fellow-men, sometimes confess, without any sense of shame, that they buy cheap horses to work them up. It is, in some cases, esteemed more economical to exhaust the life than to purchase and to maintain that number of animals which would be equal to the labor. This horrible system is in daily operation in a country professing Christianity!

Glanders is provoked by human depravity. Had people common feeling for the life over which they are given authority—would they only admit, in its largeness and its truth, that "the laborer is worthy of his hire"—the disease might, in one year, become a tradition.

At present the affection exists as the dread of every horse proprietor. It is highly contagious—all owners of horses know this. The stable may be scrupulously clean, yet the poison may have been lodged there by the last inhabitant. It is not only contagious to horses, but it is equally dangerous to men. Three sad instances of this fact have come to the author's knowledge. Two respectable gentlemen, moving in good society, were each contaminated, and both pitiably perished of this terrible disease. They were no stable-helpers, moving and living among suspicious beasts, but individuals whose avocations did not oblige them to mix with horses—gentlemen of professional standing, who were inoculated they knew not how. Mr. Gowing, of Camden Town, informed the writer, of a boy who once went from a shop to stand at the head of a pony the master of which wished to make a purchase. The animal, while the boy was so placed, cleared its nostrils, and a portion of the ejected matter flew into the lad's eye. The handkerchief removed the soil, and the accident was soon forgotten. However, the poor youth was glandered, and became a patient in the University Hospital.

Such facts sufficiently prove all men have an interest in opposing any conduct likely to generate so horrible a scourge. Man, as a community, is answerable for the comfort of every creature intrusted to his charge. He may refuse to accept the conditions of the trust, but he cannot escape the responsibility. In proof of the truth of this conclusion, glanders is now recognized as one of those incurable diseases, generated by neglect, to which the human being is liable, in every hospital throughout the kingdom.

Why is the legislature behind the medical profession in the extent of its recognitions? Any man may now, according to law, drive or ride a glandered animal through the crowded streets of any town in the three kingdoms. He may, without fear of punishment, endanger the lives of the unsuspecting wayfarers, whom it is the especial province of the Parliament to protect. Why should not the glandered stable be detected, and the animals, dangerously diseased, be slaughtered? Why should any man be allowed to retain, and openly use as property, that which is perilous to society; and wherefore should law protect him, when harboring pestilence for the sake of profit?

That the foregoing observations are correctly based, is proved by the pest becoming less common as the public have morally improved—only, why leave so immediate an evil to be cured by so slow a process? Years

ago, an affected horse, led through the streets, was an almost hourly occurrence. Since that time we have improved, and such sights are no longer common. Therefore the morality here alluded to is not of limited meaning. It implies improvements in drainage, and all those innovations by which life has been made more secure. He is the truest benefactor of mankind who lessens the ills to which existence is exposed.

Glanders is the phthisis of the horse. Phthisis is, in some countries, esteemed even more dangerously contagious than glanders and farcy are in England admitted to be. Man, however, employs a handkerchief; the plates off which he feeds are washed. The manger is never cleansed; and the discharge soils the boards on which the corn reposes.

The lungs of very many horses, however, which have perished of the pest, will exhibit numerous tubercles; these, in the human subject, are considered conclusive evidence as to the existence of phthisis.

THE LUNGS OF A HORSE WHICH HAD PERISHED FROM GLANDERS.
(A portion of the left lung has been excised, to show the ravage of the disease.)

By some practitioners glanders is esteemed a purely local disorder. In books, schools, and elsewhere, the running from the nose has been pointed out as the disease itself; and the situation of the affection is said to be the frontal sinuses—hence the dependence placed in various caustic injections forced up the nostrils.

A very little reflection will, however, enable the reader to take a more extended view of the malady. When glanders exists, a staring coat generally declares the skin affected; and the customary termination of the disorder—farcy and dropsy—proves more than the surface of the body to be implicated. The lungs—or, at all events, the air-passages—never escape. Loss of flesh and swelling of the glands demonstrate the absorbent system to be involved. Absence of spirit and inability to work, toward the close of the affection, are evidence the nervous system does not escape. The secretions are derived from the blood; and the blood, it has been shown, by a silly experiment, is capable of generating the malady. Their pallid aspect, after death, convinces us the muscles were far from healthy. Of all parts, perhaps, the abdominal contents are least diseased, though the marked decay of appetite does not favor such an opinion. What disease, then, can be considered a constitutional disor-

der, if one which involves so many and such various structures is to be regarded as a strictly local affection?

A horse, full of corn, and in the prime of health, if unfortunately inoculated with the virus of glanders, generally has the disease in its acutest form: the animal may be dead by the expiration of a week. Other quadrupeds, in which the disorder is provoked by natural causes, may, on the contrary, exhibit glanders in the most chronic shape. If the exciting cause has a strong constitution to act upon—especially if the horse, soon after imbibing the poison, be removed to easier work or a more dry abode—the malady may exist for years in a subtle, undeveloped form. A thin discharge only may run, irregularly, from one nostril. At times no fluid may appear, nor is the liquid ever copious. One of the kernels, or lymphatic glands, situated between the branches of the channel, may be more or less fixed. But, otherwise, the horse is active, full of fire, and exhibits nothing to excite suspicion. During all this time the creature may be endowed with a fatal power of communicating the disease. Horses, having received the taint from such a source, may die within the week, while the cause of the mortality eats well, works well, delights the master's eye by its thriving appearance, and in such a condition even may exist for years.

THE HEAD OF A HORSE WHICH HAD BEEN SLAUGHTERED FOR GLANDERS.

1. The lymphatic gland enlarged, hard, and adherent firmly to the interior of the jaw-bone.

In the early stage it is difficult to pronounce positively upon a case of glanders. Ulceration of the nasal membrane would be confirmation of the worst doubt; but the ulceration may be situated so high up as to defy all our efforts to distinguish it. Yet running from the nose may be perceptible, and the gland may be fixed to the jaw. Both of these symptoms, although lawfully provoking our fears, are frequently attendant upon aggravated or upon prolonged colds. The only lawful test, in such cases, is the administration of three doses of solution of aloes, eight ounces to the dose—allowing three days to elapse between each. If the horse be glandered, before the last purgative has set the real nature of the malady will be apparent in the aggravation of the symptoms. If glanders be not present, a little careful nursing will generally remove all effect of the medicine.

The glanders is mostly ushered in by febrile disturbance. The appetite is bad, the coat stares, and the pulse is quickened. A mash or two, however, apparently sets all right, and the matter is forgotten. Soon afterward a slight discharge may issue from one nostril; but it is so very

slight, it excites no alarm. One of the lymphatic glands, on the same side as the moist nostril, alters in character. It may remain loose and become morbidly sensitive. Usually, however, it grows adherent to the jaw, turns hard, insensitive, and, from being wholly imperceptible in the healthy animal, enlarges to about the size of half a chestnut.

THE PRIMARY DISCHARGE OF GLANDERS. SIMPLY A SLIGHT WATERY DEFLUXION.

THE SECONDARY DISCHARGE. A THICK AND COPIOUS BUT STILL TRANSPARENT EXCRETION, CONTAINING PIECES AND THREADS OF MUCUS.

At a later period the discharge, retaining its clear appearance, becomes more consistent, and, to a slight degree, the hairs and parts over which it flows are incrusted. It subsequently adheres to the margin of the nostril, and then, in the transparent, albuminous fluid may be seen opaque threads of white mucus. This marks the second stage.

THE THIRD, OR SUPPURATIVE STAGE OF GLANDERS.

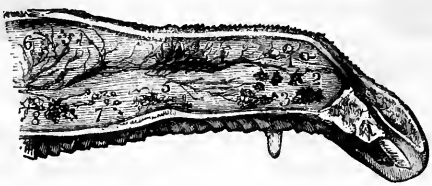
The next change takes place more rapidly. The transparent fluid entirely disappears, and in its place is seen a full stream of unwholesome pus. At this time there is some danger of glanders being mistaken for nasal gleet. A little attention will, however, rescue any person from so imminent a peril. The smell of glanders is peculiar. It is less pungent but more unwholesome, suggesting a more deep-seated source, than characterizes the disease with which it has been confounded. The ejection of glanders, moreover, is obviously impure; whereas that of nasal gleet generally flows forth in a fetid stream of thick and creamy matter.

THE FOURTH, OR LAST STAGE OF GLANDERS.

When the third stage is witnessed, the disease is rapidly hurrying to its termination. The membrane of the nose changes to a dull, leaden color. The margins of the nostrils become dropsical, and every breath is drawn with difficulty. The defluxion exhibits discoloration. Scabs, masses of bone or pieces of membrane, mingled with patches of blood, next make their appearance; and the internal parts are evidently being broken up by the violence of the disorder.

The above description of filthy facts is, probably, sufficiently explicit; but to render the foregoing more clear, the following diagram is appended. The reader will perceive there are two kinds of tubercles—

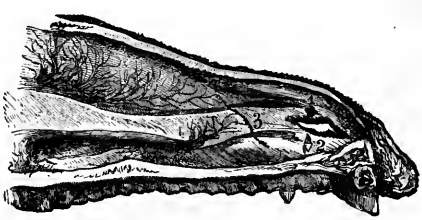
the large and the small. One is no bigger than a grain of sand; the other is as large as half a pea. The disease which follows both is the same,—is equally contagious and is equally fatal. It will also be remarked, the membrane appears swollen and partially discolored in the case of glanders. It loses its bright, fleshy, or healthy hue; and it assumes a dull, heavy, and dropsical aspect. It will likewise be observed that comparatively few blood-vessels are ramifying upon the affected membrane, which sign, in a well-marked case, is often so obvious as to become a leading indication of the disorder.



THE SEPTUM NASI OF AN OLD HORSE, SHOWING THE DIFFERENT KINDS AND STAGES OF GLANDERS.

1. A large tubercle.
2. The same in the ulcerative stage, pale in the center and dark at the edges.
3. The same ulcers after they have united, sloughed in one another, or become confluent.
4. The roughness which announces granular tubercles to be beneath the skin.
5. The slightly elevated condition of the membrane when granular tubercles appear.
6. Granular tubercles in the vesicular stage.
7. Granular tubercles in the ulcerative stage.
8. Granular tubercles after they have ulcerated and assumed the confluent form.

It is usual for low dealers, when a tubercle in the vesicular stage is detected, to assert that it is only a piece of mucus. To test such assertion, wrap a portion of tow, or anything soft, round a small stick, and wipe the place. If it be mucus, it will be removed; but if it remains, the reader may rest assured as to its nature. When an ulcer is seen, the dishonest salesman will laugh, and ask if that is all the inspector



THE TURBINATED BONES OF A YOUNG HORSE WHICH WAS FREE FROM GLANDERS, SHOWING THOSE APPEARANCES A GLANDERED NOSTRIL IS OFTEN ASSERTED TO EXHIBIT.

1. A punctured wound, the skin removed, but darkest toward the center.
2. A lacerated wound, with a flap of pendant membrane.
3. A scratch—long and rough—having the edges slightly raised.

can discover—declaring the horse recently hurt itself against a nail. The interior of the nostril is a very sheltered part, and, therefore, very unlikely to be wounded. Yet so that the reader may be prepared to

recognize such reality, in spite of the hard swearing and loud jocularity which is designed to confuse him, a diagram of a portion of the nostrils, covered with healthy membrane and showing the veins natural to the part, also displaying the shapes and appearances of wounds—when they occur—is inserted.

The reader has been told what constitutes glanders. He has been instructed how to recognize its more marked indications. There, however, remains to teach him the manner in which a suspected horse should be handled or examined.

The animal's head should be turned toward the strongest light obtainable; if toward the blaze of the noonday sun, so much the better. The examiner should then place himself by the side of the creature's head, not in front, but in a situation where, though the animal should snort, he is in no danger of the ejected matter falling upon him. With one hand the upper and outer rim of the nostril should be raised; when, grasping this part between the finger and thumb, no fear need be entertained. The case would be something more than suspicious, were any risk of contamination incurred.

The wing of the nostril being raised, the examiner must note the appearances exposed; this he will best do by knowing where to look and what to expect. His eye has nothing to do with the skin nor with the marks that appear upon it. The opening of the lachrymal duct often challenges observation by being well defined and particularly conspicuous; but that natural development does not concern him; to that no attention must be given. The inspection must be concentrated upon the membrane more internally situated than the skin seen at the commencement of the nostrils. The skin, moreover, suddenly ceases, and is obviously defined by a well-marked margin; there is, therefore, no difficulty in distinguishing the membrane by its fleshy and moistened aspect, as well as by its situation. If, on this membrane, any irregular or ragged patches are conspicuous, if these patches are darker toward their edges than in their centers, and if they, nevertheless, seem shallow, pallid, moist, and sore, the animal may be rejected as glandered. Should any part of the membrane—after being wiped as before directed—seem rough or have evidently beneath its surface certain round or oval-shaped bodies, the horse assuredly is glandered. The membrane may present a worm-eaten appearance, or be simply of a discolored and heavy hue. In the first

THE PROOF OF GLANDERS.

1. Termination of the lachrymal duct—a natural development.
2. A discolored membrane, disfigured by ulcerative patches.

case, the animal ought to be condemned; in the second, it is open to more than suspicion.

No animal should be permitted to slowly perish of glanders. The disease, as it proceeds, affects the fauces, pharynx, and larynx; all become ulcerated. Not a particle of food can be swallowed; not a drop of saliva can be deglutated; not a breath of air can be inspired, without the severest torture being experienced. As the disease proceeds, the obstruction offered to the breathing grows more and more painful. Farcy breaks forth, and, as a consequence, superficial dropsy is added to the other torments. The edges of the nostrils enlarge; the membrane lining the cavities bags out, while the fauces and larynx contract: the discharge becomes more copious and the breathing is impeded. Thus the difficulty of respiration is increased, just as the condition of the lungs renders the necessity of pure air the more imperative. Ultimately, however, laborious breathing induces congestion of the brain, and the wretched sufferer falls insensible—it is hoped—to die of actual suffocation.

Such is a brief description of glanders, to cure which every now and then pretenders arise. No medicine, however, can restore the parts which disease has disorganized. There is no cure for glanders, which is essentially an ulcerative disorder. Every horse being thus contaminated should be at once destroyed: it is now lawful to do this when animals are taken in Smithfield market; but what is just in one place is surely not unjust in another. Moral rectitude resides on no particular spot. The blackguards who deal in contagion, driven from the public market, now reap a rich harvest by private sales. A chronically-glandered horse is an actual property to these rogues. It is sold. No sooner is the money paid and the vendor out of the way, than an accomplice appears and points out the nature of the bargain. The unfortunate purchaser seeks advice, and finds his worst fears confirmed. The accomplice offers to buy the horse at a knacker's price. It is obtained; and again it is advertised as "a favorite horse, the property of a gentleman deceased."

Any person ought by law to be empowered to give any man, driving or riding a glandered horse, into custody. There should be appointed certain qualified practitioners who should have authority to enter any stable at any time. Those abominations, where numbers of glandered horses are now stived together, whence they only are taken out to draw public vehicles by night, would then soon cease to exist. Were glandered horses by law condemned, men, from mercenary motives, would soon cease buying cheap life for the purpose of working disease to utter exhaustion. Such proprietors, were glanders declared just cause for slaughtering any horse wherever found, would soon discover their cheap

purchases to be dear bargains. It is terrible now to witness animals, in almost the last stage of a most debilitating malady, goaded through the public streets with cruel loads behind them. It is horrible, when we reflect that every citizen in a large town is, by the avarice of unscrupulous people, exposed to a most loathsome disease, and to a most torturing death.

FARCY.

When the horse, which has been the pampered favorite in its youth, grows old, it generally becomes the half-starved and over-worked drudge of some equally half-starved proprietor. In the fullness of its pride and the freshness of its strength, it had to canter under the airy burden of my lady's figure. When the joints are stiff—when accident, disease, and sores, have rendered every movement painful; and when its energy is poorly fed upon the rankest provender—then the wretched animal is,

THE OLD FAVORITE AND THE NEW PET.

by the whip of a thoughtless hireling, forced to toil between the shafts of some creaking cart. It is sad to watch the vehicles on a London road, and speculate upon what has been the past fortune and will be the future fate of the animals which propel them!

Farcy is peculiarly the lot of the poor man's horse. It is the consequence of utter exhaustion. It is the horrid friend—the last and dreadful rescuer of the thoroughly wretched. No one cause will produce it. To generate farcy, there must be a congregation of evils: the constitution must be weakly; the grooming must be neglected; the food must be stinted; the bed soiled; the dwelling small; the drainage bad; the master unfeeling, and the work excessive. All of these things, or so many of them as nature can endure, must exist before farcy can be generated.

It is true the disease can be communicated by inoculation. But that source of farcy is of very small importance. Not one case in a thousand thus originates. Farcy is essentially a skin disease. It commences with specific inflammation of the superficial absorbents. This inflammation leads to suppuration and to ulceration. Abscesses first appear. They may come on any part of the body. They seem to be, in the primary instance, lumps or hard enlargements. Something of the annexed form is first observed. There may be one of these, or there may be many. Ultimately they burst or are opened. Apparently healthy matter then issues from the interior. But the first discharge being released, the wound does not heal. The edges grow rough, the center of the sore becomes pale, and moistened by a thin, semi-transparent fluid. Then, if the neighborhood of the sore be felt, cords, more or less thin, will be discovered running from it toward some other lumps on the body.

A FARCY BUD.

Such is the distinguishing sign by which to recognize farcy. Lumps appear, which prove to be abscesses. They, after discharging, do not heal; they become ulcers. From them run certain cords, which are the swollen lymphatic or absorbents. Till the enlargement of the absorbents is discerned, a man, from the other signs, may suspect, but he cannot pronounce with certainty, the disease to be farcy.

If a recent case of farcy be slaughtered and dissected, the affection appears to go no deeper than the skin. The cellular tissue will exhibit indications of dropsy, which invariably is present. The muscles will be pallid and flabby, suggesting bodily debility; but, to most observers, such signs will be all that is discernible.

Is farcy, then, strictly, a local disorder? Can such be asserted of a malady which appears to be so constitutional in its origin? Is there nothing continuous with the skin? Yes, there is. Intimately connected with the outward covering of the body, imperceptibly blending with it, and capable, after exposure, of assuming its appearance, is the mucous membrane. Mucous membrane lines the interior of the body, and is very abundantly supplied with absorbents. The French, who are far more minute observers and more accomplished dissectors than the generality of English surgeons, have, in cases of farcy, detected signs which assure us the disease is not strictly an external affection. It has an internal and a deep-seated origin, as is evidenced by the discovery of a few tubercles upon the mucous membrane of the interior.

The course of the disease would likewise teach us to arrive at this

conclusion. The appetite often fails; sometimes it becomes voracious. The matter is, by pressure, to be squeezed through the skin. The thirst becomes torturing; the horse will cry for water. All it drinks, however, passes quickly through the body, and the desire for fluid cannot be satisfied. At last—as though to prove the correctness of our opinion concerning the constitutional nature of farcy—glanders breaks forth.

Glanders and farcy seem to be the same disease, modified by certain circumstances to which the animal is exposed. Thus a horse, inoculated with the matter of glanders, may become farcied; or an animal, infected with the taint of farcy, may exhibit glanders. These results, together with the fact of a glandered horse displaying farcy prior to death, and of a farcied animal exhibiting glanders previous to decease, are pretty conclusive evidence.

Farcy is of two kinds, the large and the small. The large may appear as one or more abscesses. Generally it is disposed to select, in the first instance, those places where the skin is thin and the hair all but absent. It breaks, and becomes shallow ulcers, which, however, may heal upon the application of any escharotic. The abscesses are not, in every instance, of one absolute figure. They vary in such respect, and have a tendency, if neglected, to generate large ulcers, from which spring unsightly bunches of fungoid granulations.

FARCY ON THE INSIDE OF THE HORSE'S THIGH, WHERE THE SKIN IS THIN AND THE HAIR ALMOST ABSENT.

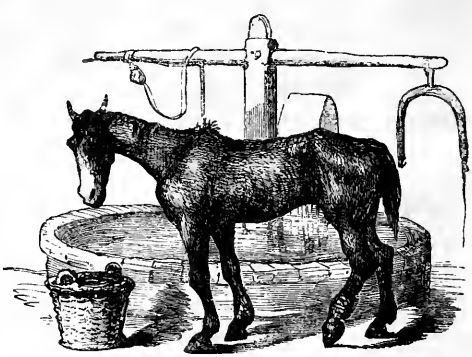
The smaller description of this disorder has no preference for any particular locality. It appears, like surfeit, in small lumps all over the body. These lumps, from their size and uniformity, have been likened to buttons—hence the term "button farcy." Cords soon connect them; they maturate and burst, like the larger sort. The "button farcy," however, leaves a deeper and a more painful ulcer. It yields less readily to treatment, and seems to exhibit itself before the body is utterly exhausted.

A PORTION OF SKIN, TAKEN FROM A FARCIED HORSE, INJECTED WITH MERCURY.

How very numerous the absorbents of the skin are, may be conjectured from the subjoined engraving of a prepared specimen—and not a very successful one either—of a piece of farcied skin, when deprived of hair. In this case, the animal suffered under the large or common form of the

disease. In the button variety, the tumors would only be smaller, of a more even size, and far more numerous.

Farcy is, by the generality of practitioners, regarded as a more tractable disease than glanders. Certainly the course of the disorder is arrested much easier; but, to cure the malady, there is a constitution to renovate and a virus to destroy. Is it in the power of medicine to restore the health and strength, which have been underfed, sapped by a foul atmosphere, and exhausted by overwork? Tonics may prop up or stimulate for a time; but the drunkard and the opium-eater, among human beings, can inform us that the potency of the best-selected and the choicest drugs, most judiciously prescribed and carefully prepared, is indeed very limited. What, then, can be hoped for in an animal whose treatment is generally an affair of pounds, shillings, and pence? Sulphate of copper or of iron, oak-bark, Cayenne pepper, and cantharides, probably, are the chief medicines the practitioner will give. With such the horse may be patched up; it may even return to work. But at what a risk! It carries about the seeds of a disorder contagious to the human species, and in man even more terrible than in the quadruped. Is it lawful, is it right, to save an avaricious master the chance of a few shillings, and to incur the risk of poisoning an innocent person? The author thinks not. Therefore he will give no directions how to arrest the progress of farcy. The horse, once contaminated, is, indeed, very rarely or never cured. The animal, after the veterinary surgeon has shaken hands with the proprietor and departed, too often bears about an enlarged limb, which impedes its utility, and, at any period, may break forth again with more than the virulence of the original affection.



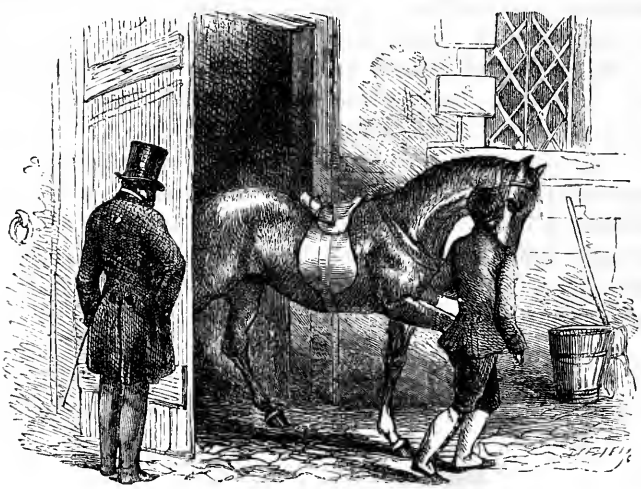
A GENTLEMAN'S SERVANT OUT OF PLACE.

CHAPTER XII.

LIMBS—THEIR ACCIDENTS AND THEIR DISEASES.

OSSEOUS DEPOSITS—SPAVIN.

"ONE horse could wear out two pairs of legs," is an old jockey's phrase. Most men, when purchasing a dumb slave, pay great attention to the lower extremities. If an animal be used up or has performed hard work, the indications are sure to be found on those parts; but what a comment does the language and the act referred to pass upon the conduct of those masters, the history of whose treatment, or rather



A PARK NAG WITH BONE SPAVIN LED OUT OF THE STABLE.

whose abuse of a living creature, is thus sought for and often found upon a breathing frame!

Before the strength has departed, or the legitimate number of years are exhausted, cruelty deprives a most obedient drudge of its power to serve. The history of almost every horse in this kingdom is a struggle to exist against human endeavors to deprive it of utility. Nature, when she made the animal, formed a creature hardly second to her master-piece in anatomical perfection; the legs are strong, but, in his impatience and in his blind obedience to the dictates of fashion, man *will* put them to

their fullest use before their structure is confirmed. Racers go into training when one year old. Carriage horses, omnibus machiners, cart horses, nags, roadsters, may-birds, and park hacks generally come into work about the third year. The animal, however, does not cut all its teeth till the completion of its fifth birthday. It requires to look upon eight seasons before its adult period is entered upon; and yet at the third year, or before that period, it is put to such work as only a horse can or does perform.

When the horse was designed to be only matured, the frivolity of mankind pronounces the creature to be *aged*. The life is, indeed, generally worthless before the eighth year is entered upon. The young flesh, bones, and sinews, long before that time arrives, are made the seats of poignant diseases. Work, not in the first instance laborious, but sudden and energetic beyond what the frame of the young horse can endure, casts it out of the gentleman's stable. Once removed from that place, its descent is rapid. From the carriage to the cab is a leap often cleared in equine history; but every change adds misery to its lot. It fares worse, lodges worse, and works harder with every new proprietor, till at length, as its years and wretchedness accumulate, Nature interposes and takes the sufferer to herself.

At the head of this article stands an engraving of the mildest form of reward which docility reaps by service unto cruelty. When will this land, which so loudly boasts its Christianity, apply in its fullness and its strength the sacred maxim—"Do unto others as you would others should do unto you"? When will churchmen teach that the religion which does not enlarge the heart toward every breathing life upon the earth, is unworthy of the *Christian* title? Men who would rage to hear their faith called in question, nevertheless feel no shame when they urge the young steed to that act which probably will cripple the animal for the short remainder of its life.

Spavin, splint, or **ring-bone** are no more the legitimate consequences of equine existence, than nodes and anchylosis are the natural inheritances of human beings; yet what would the world look like, if men had their motions impeded and their joints firmly locked by bony deposits in anything like the proportion which such misfortunes are witnessed in the inferior life? The most useful, the most trusting, and the most joyous of animals is the one toward which man acts as though his study was to abuse the authority intrusted to him. Its utility lies in its legs; its play also is a canter; but before its body is set, its limbs are disabled. Kindness can subdue the creature, which, however, is never taken out of its prison without the whip; it is treated as a thing without feeling: but its body is not more impressible to brutality than

its feelings are sensitive to gentleness. The one is often injured, and the others are frequently vitiated by the master it too literally obeys.

Spavin and splint both are the change of ligamentous structure into bone: spavin occurs at the inner and lower part of the hock; splint also may be sometimes found at the same part of the knee. The name splint is likewise applied to any bony enlargement upon the shins or below the hocks and the knees.

BONE SPAVIN.
A swelling or bony tumor, situated upon the lower and inner part of the hock-joint.

Splints in the fore leg are mostly seen on the inner side. On the hind limb, however, such growths principally favor the outer side. The advent of splint, when near the knee, is generally accounted for by saying the inner side of the joint lies more under the center of gravity, and, therefore, is the more exposed to injury. Such an interpretation, however, leaves the preference for the outer locality—when splints are witnessed on the hind leg—unexplained. Perhaps the reader will—after having contemplated the two following engravings, and subsequent to having observed that the artery of the hinder limb crosses the inferior part of the hock, to take its course down the outer side of the leg, while in the fore extremity the vessel continues along the inner side of the shin-

THE *inside* OF THE FORE LEG, SHOWING THE VESSELS PROPER TO THAT PART OF THE LIMB GENERALLY AFFECTED BY OSSEOUS DEPOSITS.

THE *outside* OF THE HIND LEG, DISPLAYING THE VESSELS NATURAL TO THAT PART OF THE LIMB WHICH IS COMMONLY THE SEAT OF OSSEOUS DEPOSITS.

bone—conclude with the author that, in splint, the distribution of the blood is more to be regarded than the weight, which, originally conveyed through a ball-and-socket joint, can hardly afterward affect one part to the release of the rest.

Having explained the peculiarity attending some bony tumors on the

hind extremity, it now becomes our duty to explain what actually constitutes a spavin. Any bony growth or bony enlargement, however small, which is to be seen or felt upon the inner side of the hock, is a "spavin." But of spavins there are three kinds. The low sort, or the "Jack" of the horse-dealer's phraseology. This answers to the splint of the fore leg, and originates in the top of the splint bone.

A SHIN-BONE HAVING AN OSSEOUS DEPOSIT UPON ITS HEAD AND ON THE INNER SIDE, WHICH MIGHT BE A SPLINT OR A SPAVIN, AS IT OCCURRED UPON THE FORE OR HIND LEG.

THE INNER SIDE OF THE HOCK AFFLICTED WITH HIGH OR INCURABLE SPAVIN.

The bony enlargement, should it be located comparatively high upon the joint, often produces acute and incurable lameness. When low down, the granules of bone have little to interfere with. Being placed higher up, the tendons have to play over the osseous deposit; and, when that happens, the cure is hopeless.

The above form of disease, however, does not ensue upon every case of spavin. Many good racers, and most seasoned hunters, have spavins, which do not in any way detract from their speed, however much these growths may interfere with their action.

Bony spavin does, when the quadruped starts, sensibly deteriorate that

THE NATURAL POSITION OF THE HEALTHY FOOT WHEN RAISED FROM THE EARTH DURING AN EASY TROT.

THE FOOT, INCAPABLE OF BEING FREELY RAISED FROM THE GROUND, BY A HORSE WHICH IS BADLY SPAVINED.

grace of motion which should characterize the action of the perfect horse. During the trot, the leg should be lifted clear of the earth,

while, by an involuntary movement within the hock-joint, the hoof is inclined outward. This peculiarity is exhibited in the engraving on page 289, which supposes the spectator to be standing by the side of the animals.

Exostosis, formed on any part, locks together the bones which the deposit may involve, or it unites the several distinct parts into one osseous mass. By the bones of the hock being thus joined, all movement of the shin is effectually prevented; the foot of a spavined horse is, to a spectator who is laterally situated, always presented in a side view. Moreover, when severe spavin is present, the entire flexion of the lower portion of the limb is rendered impossible.

The toes being moved along, instead of being lifted from the ground, occasions the hoof and shoe to suffer wear. The hoof generally presents a toe blunted by perpetual friction; while the shoe of a spavined horse is, in front, worn to a state of positive sharpness. These indications of disease should always be sought for, and, when present, they are so obvious as hardly to be mistaken.

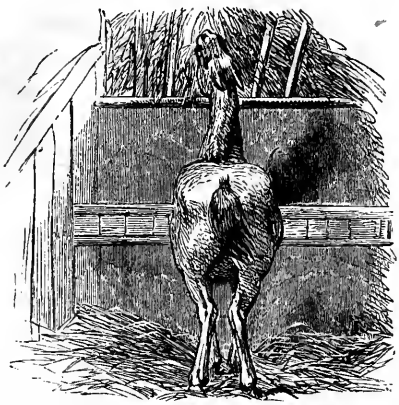
THE FOOT OF A SPAVINED LIMB, SHOWING THE WEAR OF THE TOE OF THE HOOF AND SHOE; BOTH ARE CONSEQUENT UPON DRAGGING THE MEMBER UPON THE GROUND.

Another test for spavin consists in observation made upon the manner of going. A horse thus affected comes out of the stable always stiff, and sometimes lame. Exercise, by warming the body, seems to soften the stubbornness of the disease; and the same animal, which left the stable in a crippled condition, may return to it in a state which, to the generality of gentlemen, would represent soundness. So well are dealers acquainted with this fact, that it is a custom with these folks for a spavined horse to be warmed before it is shown to a probable purchaser. No person, however, should hazard an opinion on any quadruped which is not perfectly cool, especially when there is a motive to be suspected of the slightest desire for a favorable judgment. The horse which, after exercise, should trot past with no obvious sign of spavin, having stood for an hour in the stable, would come forth a decided cripple, or, at all events, with such faulty action that a novice would immediately detect something wrong about the legs. This peculiarity is illustrated by the engraving which heads the present chapter.

Should the dealer refuse to exhibit the animal when cool, such refusal would be convincing evidence as to the condition of the horse. The sale should, under such circumstances, be at once repudiated.

However, when judging of disease, it is always well to divest the mind of every kind of prejudice. Animals of a certain kind of conformation are said to be disposed, or to be more than ordinarily subject, to spavin. Creatures of the foregoing sort show what are denominated sickle-hocks

or cow-hocks. A sickle-hock is not a diseased joint, but it is one which the majority of horsemen have stigmatized as very liable to become diseased. Weakness, it it is only natural to imagine, such a malformation indicates; but, so far as the author's experience goes, creatures thus formed often continue sound when limbs of model shape give way.



A SICKLE-HOCKED OR COW-HOCKED HORSE.

It is now our duty to inform the reader how to examine a horse for spavin. In this operation there are four points of view to be taken —behind the animal, though always at a safe distance from the heels; in the front, but not close to the horse, yet so near that the examiner must bend to view the hocks between the fore legs; and from both the sides. In all these positions, it is prudent now to elongate the distance and now to approach nearer; then to move the head about, and occasionally to step to the right or to the left. In short, it is advisable to get as many different points of sight as possible; for in one, and only in one, may a spavin be detected on the hock, which, seen from any other spot, shall look perfectly clean. At the same time, from every point care should be taken to compare one hock with the other; if the slightest difference in point of size can be detected, it is fair to suppose one is enlarged by the commencement of disease. Any indication of this sort is always to be sought for. The disease may have just begun, but it is impossible to say where it may stop. The spavin may be very small; yet who can assert its growth is perfected? In the examination for spavin, however, allowance should be made for the age of the horse. Spavins, in young horses, may be regarded with alarm; in old animals, they generally are perfected, and, however large they may be, probably they will grow no bigger—on the contrary, as the years increase, they are usually diminished, being absorbed; but the bones, once locked together, are never subsequently unloosed, although all the swelling should entirely disappear.

The examination having been up to this point properly performed, there is yet another test to be adopted before the animal is trotted forth; here a well-trained and attentive groom is of every value—one who will keep on the same side as you may be upon, and who will follow your

footsteps whenever you change from right to left. The duty of this groom is to hold up the front leg; the more stress is placed upon his attention, because no horse can kick with the hind foot of that side upon

THE POINTS OF VIEW WHENCE TO LOOK FOR SPAVIN IN A HORSE.

which one fore leg is off the ground. The attempt would deprive the body of all lateral support, and a fall would ensue; whereas many quadrupeds can, for a short time, balance themselves upon two legs, each being on opposite sides of the body: therefore the examiner, probably engrossed in his occupation, would be in considerable danger, should the groom forget to follow his movements.

Most horses are averse to having the hocks fingered; such liberties are apt to call up vehement indignation; it is necessary, therefore, to guard him who undertakes to inspect them. This the groom does most effectually; but the examiner should also take some caution—he should stand as close to the foot of the horse as may be convenient. Thus, should the animal kick out, he may escape, or, at most, be very rudely pushed on one side. The horse's kick is only severe after the heels have reached some distance, or have obtained power by propulsion; for that reason is the advice given to stand as near the hind foot as may be convenient.

Being in this situation, one hand is laid upon the top of the hock, and the entire weight of the body is brought to bear upon that part. The object is threefold—to obtain, by this means, the earliest intimation of any design on the part of the animal to use the limb; to impede in some measure the extension of the leg; and to gain a point of rest on which to lean, while the head is bent forward to inspect, the free hand being employed to feel the part appropriate to spavin. Afterward comes the trot, the peculiarities to be detected in which have been anticipated.

THE MANNER IN WHICH TO FEEL FOR A SPAVIN.

Now we encounter the important question, What can be done for a spavined horse? If the animal be not

lame, let it alone. However large, however unsightly the deposit may be, do not run the chance of exciting a new action in a part where disease exists in a quiescent form.

The regular treatment is to purge, give diuretics, bleed, blister, rowel, seton, periostoteomy, neurotomy, fire, and punch. The bleeding may be great or small, local or general; the blister, mild or severe, applied over half the joint at a time, or rubbed in after the limb has been scored by the iron. Rowels and setons may also be simple, or they may be smeared with irritants, which are made of different strengths. Periostoteomy may be single, or may be made compound by the addition of a seton and a blister. Neurotomy is very unsatisfactory, and very often a most tedious affair when employed to cure spavin. The fire may be down to the true skin; it may be through the skin, and on to the tumor; or it may be inflicted by means of a blunt-pointed instrument, which, when heated, burns its way into the bone itself. The punch also admits of variety; it may be with or without a blister; it may be holes made in a living body, which holes are filled with a corroding paste. Or the operation may consist of the exposure of the bone, and cutting off the offending portion with a saw, or knocking away part of a breathing frame with a chisel and a mallet.

All these tortures have for centuries been inflicted; they have been practiced upon thousands of animals, only for men, at this day, to doubt whether the cruelty has been attended with the slightest service. Flesh, as capable of feeling as our own, has been cut, irritated, burnt, and punched for hundreds of years; and now, at the twelfth hour, such operations are not discarded, but their efficacy is mildly questioned.

Reader, if you have a horse which is lame from spavin, and your calculations tell you it will not pay to nurse the cripple, have it slaughtered. Do not consent to have it tortured for a chance; do not sell it to the certainty of a terrible old age and of immediate torment.

The cure for spavin is good food and rest — perfect rest: such rest or stagnation as a healthy horse submits to in the stable. This, enjoined for months, with the occasional application of a mild blister, with the best of food, to enable nature to rectify man's abuse, will do more good, cost no more money, and occupy no more time than the devilries usually adopted, and very often adopted without success. As an additional motive on the side of humanity, it may be stated that the horse suffers much more when disease is located in the hind than when it is exhibited upon the fore leg. The ravages which, in the first case, would endanger the life, in the last would be borne with comparative tranquillity. The posterior parts of the animal seem to be endowed with exquisite sensibility; yet, in spite of this, the so-called cure for

spavin, and the boasted treatment for ages, only consists in torturing the hocks of the animal.

While inflammation exists, apply poultices, and well rub the part with a mixture of belladonna and of opium—one ounce of each drug rubbed down with one ounce of water. Or place opium and camphor on the poultices; or rub the enlargement with equal parts of chloroform and camphorated oil. The pain having subsided and the heat being banished, apply, with friction, some of the following ointment. It may reduce the disease by provoking absorption; at all events, it will check all further growth by rendering further deposit almost an impossibility.

Iodide of lead	One ounce.
Simple ointment	Eight ounces.

Mix.

SPLINT.

The horse, could it only speak, would have sufficient cause to overwhelm man with its injuries. It is to be hoped that He who heeds not language, but reads the heart, will not peruse the horror written on that of the most contented and sweetest-dispositioned of man's many slaves. It is true, colts have spavin and splints. Creatures, whose days of bitterness are as yet to come, exhibit exostoses; but these blemishes are the sad inheritances of the cruel service exacted by thoughtless masters from the progenitors of the deformed. Nature gave the horse a fibro-cartilaginous or elastic union to particular bones, so that all its motions might be bounding and graceful. The animal, thus formed, was presented to man; but the gift was not prized by him to whom it was given. The authority possessed was abused. The capability of the horse was only measured by what it was able, at the risk of its life, to perform. The most humane of modern proprietors is an ignorant tyrant to his graceful bond-servant. The most meek of owners likes his horse to possess high action. The consequence is, the leg, lifted from the ground to the highest possible point, is forcibly driven again to the earth. This pace is imposed upon a creature so docile, it only seeks to learn that which pleases its master, and, in the entirety of its confidence, never mistrusts its instructor. The lesson is learned. The animal soon becomes proud to exhibit its acquirement. High action, however—especially that kind of action the horse is taught to exemplify—soon deranges the system. It breeds inflammation in the fibro-cartilaginous tissues, upon which its chief strain is felt. The union between the splint bones and the cannon, or between the shin-bone and the accessories, one on either side, speedily becomes converted into osseous matter.

However, man cannot say to nature, "Thus far shalt thou go, and no

farther," otherwise the alteration of structure, if unseen, might distress the horse, but would little affect the owner. A diseased action, once started up, is apt to involve other parts than those in which it originated. Thus, a splint is strictly an exostosis or bony tumor on the inner and lower part of the knee-joint; but there are found to be others which this definition will not embrace. Here, for instance, are the ordinary kinds of splint to be seen, more or less, in every animal subject to man's usage.

Number 1 is unsightly. Moreover, it gives an unpleasant jar to the rider of the poor horse thus deformed; and few men, when they state this fact, ever think of what sensation that which jars the equestrian must occasion to the steed. It will produce lameness at first; but, this surmounted and the tumor fully formed, it causes no inconvenience beyond a loss of elasticity when in motion; and because it provokes no lameness, man says it is unattended by feeling.

THE DIFFERENT KINDS OF SPLINT.

1. A high splint, near the knee.
2. A low splint, far from the knee.
3. A small bony growth on the front of the leg, which is also called a splint.

Figure 2 is a splint on the side of the leg. It also is unsightly, and produces a disagreeable sensation to the person in the saddle. Moreover, it is exposed to accidents. If the horse has high and close action, the tumor may be struck when the foot is being raised. Such a possibility is not altogether free from danger. The horse, having grazed the swelling, will often fall down as though it were shot. That circumstance warrants the supposition that these growths are not quite so devoid of sensibility as most horse owners are pleased to assert they are.

The slight enlargement, opposite which stands figure 3, denotes a growth of small size. It may be of no great consequence, if it appear on a vacant part of the bone, or on a place over which no tendon passes; but it is of serious import, if situated beneath a tendon, as then it causes incurable lameness.

Man having provoked these blemishes, Nature generally strives to remove the effects of his stupidity. She will smooth the top of the tumor by the interposition of cartilage and of ligament, that the skin may not be irritated when passing over these enlargements. She will also develop a false bursa on the top of each, thereby causing the integument to move with an approach to ease.

Yet there are other sorts of splints which often are very serious affairs. That the reader may comprehend these, let him attend to the next engraving.

1—Represents a splint which has involved the bones of the knee, and which has left the horse only the joint formed by the lower end of the radius to progress with. This is a sad business. The action is injured

for life; and death, or a cart, is the lot of the wretched animal so diseased.

2—Shows fine points of bone, so placed that they would impinge upon the suspensory ligament, if not upon the flexor tendons. Lameness, in its acutest form, would thereby be caused wherever the limb was bent. The lameness, probably, would last till death, as splints in this situation are rarely discovered during life.

SPLINTS OF A SERIOUS KIND.

1. A splint involving the bones of the knee-joint.
2. A splint interfering with the action of the back sinews.
3. A small splint situated under the tendon of an extensor muscle.

3—Denotes an enlargement, probably produced by a blow received during a leap, or given by an impatient groom. It is placed directly under one of the extensor tendons. In consequence of this minute substance, the severest agony is endured, or the most marked lameness exhibited, whenever the leg is advanced.

The great majority of these maladies may result from the present rage for high action, and the too general practice of pushing the horse beyond his speed. Racers and hunters commonly have splints: almost every roadster exhibits them. Few draught-horses are without them: they are all but universal. It may be easy to detect or to feel a full-sized splint; but it is rather difficult to discover these tumors when they are small, or when they are just beginning to develop themselves. At that period they are most painful. They may be mere deformities when fully formed; but, when growing, though not to be seen, they are apt to cause decided lameness.

A HORSE "DISHING," OR CARRYING THE FRONT LEG OUTWARD, WHEN ON THE TROT.

The cause of such failing action very often can only be guessed at. To detect a fully-developed splint, stand at the side of the animal's leg and grasp the posterior part of the shin; then, by running the thumb down on one side and the fingers on the other, in the groove formed by the junction of the two small splint-bones with the cannon-bone, the examiner may recognize enlargement or feel heat, should either exist. By making pressure where the heat or swelling is perceived, he may cause the leg to be snatched up. Should nothing result from this trial, the animal is trotted gently up and its action is observed. Horses with splints, when lame, generally "dish" or turn the leg outward, when it is raised from the ground. That is done because the bending of the limb pressed the splint-bone

downward, the outward carriage of the shin being an endeavor to lessen the pain which attends upon the natural action.

Should no "dishing" be remarked, next observe whether the leg is fully flexed or advanced; and, after the hints thus received, the investigation may be resumed with a better prospect of success.

The treatment of splint is conveyed in the old maxim, "time and patience." Rest will do more than physic. A man, therefore, may as well let his horse rest in his own stable, as pay for rest, lodging, and useless treatment in another place. Splints, moreover, if only subjected to rest, accompanied with liberal feeding, are likely the sooner to attain their maximum magnitude. If they are interfered with under the pretense of treatment, the irritation may cause them to increase; thus the proprietor, through his impatience, may purchase an injury.

When they are acutely painful, a poultice, on which one drachm of opium and one drachm of camphor is sprinkled, will frequently afford relief. They may also, at such times, be rubbed with a drachm of chloroform combined with two drachms of camphorated oil. These measures, however simple, aim at mitigating the present symptoms—they do not even infer the possibility of curing the disease. Periostoteomy pretended to do something of that sort; but has failed so often, it is now seldom recommended by practiced veterinarians.

When, however, a particle of the bone interferes with a tendon, the lameness is so acute that often the choice lies between cure and death; for some, even of present proprietors, scorn to sell a favorite horse which has become sick in their service. In these cases, it is lawful to open the skin, and with a fine saw, a chisel or a sharp knife, to remove the offending growth; after the operation, leave the skin open and dress the wound with a lotion made of chloride of zinc one grain, to water one ounce. This application has the great merit of keeping down granulations; but employ nothing irritating to the bone, or the result may be worse than the injury which has been removed.

Splints sometimes occur on the outer side of the hind leg; there, however, they are little thought of. The hind leg propels the horse, but does not support its body; therefore, splints of this last sort are less unpleasant to the rider. The hind leg, not bearing much weight, splints, when situated on that member, do not occasion very severe lameness, and the enlargement being located upon the outside of the shin, is thereby removed from the possibility of being struck by the opposite hoof. For these reasons, splints of the foregoing nature are considered trifles, and are rarely esteemed worthy of much notice.

To check the further enlargement of a splint with a fair chance of also removing the deformity—though with no hope of releasing the parts

locked together by bony union—employ the ointment already recommended for spavin:—

Iodide of lead	One ounce.
Simple ointment	Eight ounces.

Mix, and apply with friction thrice daily.

RING-BONE.

The whole soul of the horse seems devoted to man's will; who has not seen a team of small but sturdy horses contrive to drag a heavy load up a steep hill, as though nothing could afford them such content as to leave their hoofs behind them! What Londoner but has witnessed the cart-horse dig its toes into the stones of Ludgate Hill, and make the muscles bulge out upon the glossy coat as though life had but one object, and to that object the animal was straining every nerve!

A HORSE STRAINING TO MOUNT A STEEP HILL.

A sight such as this, when properly contemplated, cannot otherwise than teach man to esteem his fellow-laborer; for what creature on earth toils so willingly in the service of humanity as the horse? At any hour it is ready—in health it is willing, and in sickness it is obedient; even when worn out, entirely used up and driven to the slaughter-house, it looks upon its slayer with large placid eyes, stands quietly in the place where it is bid, with no mistrust in the kindness of its abuser, and ends a life of devotion by accepting the blow almost as a favor. It is the only animal which lives but to more than share the burden of its owner; yet, of all existing quadrupeds, the horse is the most ill treated.

Ring-bone is an osseous deposit; so far it resembles splint and spavin: it differs, however, in the kind of horses it attacks. Splint and spavin are principally witnessed upon quadrupeds of speed. Ring-bone is all but confined to the cart-horse. It is caused by those violent efforts this animal makes, in obedience to the voice of the driver, when dragging a heavy load up some sharp ascent. The entire force is then thrown upon the bones of the pastern; inflammation ensues; lymph is effused; the lymph becomes cartilage, and the cartilage is converted into bone. Then an exostosis is established, and a ring-bone is the consequence.

The disease may implicate one or more bones; it may involve one or more joints; it may also be confined to one bone; it may be either partial or complete. It may exist as a slight enlargement in front of the bone, or it may quite encircle it. On page 299 is a specimen of the disease. The exostosis, as in this case, was prominent during life. The disease

did not quite encircle the bones, and though, when the preparation was dried, the different parts could be slightly moved one upon another, yet, during life, the joints were firmly locked.

THE PASTERN AND PEDAL BONE OF A HORSE AFFECTED WITH SEVERE RING-BONE.

1. The joint between the pastern bones, showing the groove in which the tendon of the extensor pedis muscle reposed.
2. The joint between the lower pastern and the bone of the foot.

THE FOOT OF A LIVING HORSE WITH AGGRAVATED RING-BONE.

The animal, from which the above sketch was taken, although used to propel a cart, was by no means of a cart breed. The creature rather hobbled than went lame; but all flexion was entirely lost in the pastern bones.

One of the above sketches depicts this disease as it appeared prior to death. The reader has now to consider the consequences of such a deformity; it materially interferes with the value. The hind limbs are the instruments of propulsion in the horse; these are much incapacitated by the presence of ring-bone. An animal thus affected might move an easy load upon even ground; but when the weight had to be drawn up hill, the creature would obviously be unable to use the toe; the foot, placed flat upon the ground, or so shod as to have an even bearing, would perceptibly be of comparatively little use in such a case. So, also, in descending an inequality, the horse with severe ring-bone will be unable to bite the earth. Ring-bone, therefore, does incapacitate the animal for many uses, besides interfering with the free employment of the muscular energy; no persuasion or brutality can induce a maimed animal to cast its full weight upon a diseased limb. The pace may be quickened by the lash; but the horse will, nevertheless, continue to hop when the affected member touches the earth.

Let mankind, therefore, reflect that the horse is given as their fellow-laborer. The life of the quadruped is the property of the master; but who, being sane, would abuse his own property? The being who should destroy chairs and tables—although such things can be mended—would be speedily confined as mad. Yet it has not entered the mind of man, as a reasonable idea, that to deface a living image—to destroy the value or to deteriorate the property which is present in the animal—deserves more than the very mildest of punishments. The breathing creature,

when defaced, cannot be made sound again. Horse property is notoriously hazardous. It should be the care of men to use a tender thing with a greater gentleness. Instead of which, horses are galloped till they become blind, and lashed to drag weights beyond the proper limits of their strength. Men, who never think in whom the fault really lies, complain that Providence has not suited the horse to purposes such as would derange most iron-wrought machines!

When a horse first shows ring-bone, seek to allay the pain. Apply poultices, on which one drachm of powdered opium and one of camphor has been sprinkled. Rub the disease with equal parts of oil of camphor and of chloroform. The pain having ceased, have applied, with friction, to the seat of enlargement and around it, some of the following ointment, night and morning:—

Iodide of lead	One ounce.
Lard	Eight ounces.

Mix.

Continue treatment for a fortnight after all active symptoms have disappeared, and allow the animal to rest—being liberally fed for at least a month subsequent to the cessation of every remedy. When work is resumed, mind it is gentle, and be very careful how the horse goes to its full labor.

STRAIN OF THE FLEXOR TENDON.

The flexor tendons of the legs are liable to a variety of accidents Injuries to these structures, according to their severity, are denominated: **strain of the flexor tendon, clap of the back sinews, sprain of the back sinews,** and **breaking down.**

The first accident is common enough, and springs from the horse being forced to perform extraordinary work on uneven ground. Else it is caused by the irritability of the rider; tugging now at one rein, then at the other; forcing a timid animal into strange contortions, and at the same time elevating the head, thereby throwing all the strain upon the muscles. This is a spectacle repeatedly presented to him who walks about town. An angry rider is seen sawing, without compunction, at the mouth of some patient horse. The spectators look on complacently.

There is nothing offensive to them in an enraged man venting his anger on an unoffending creature. Were the act generally reprehended, it would not be so frequently exhibited; but the only emotion the contemplation of another's brutality appears to elicit, is a desire in the passengers to provide for their own security.

The main cause, however, of the most prevalent of these sad deformities is that of the shaft-horse descending a steep declivity with a load

behind it. The weight would roll down the descent: this the horse has to prevent, and the chief stress is then upon the back tendons. The injuries to such parts are generally of a chronic character. The strain seldom occasions decided lameness. But the horse being harnessed to the shafts, the cause is in daily operation. The part injured is being constantly excited. Thus, without the development of a single acute symptom, the tendons are stretched—a low kind of inflammation is generated—and this action being kept up, the sinews gradually lose their elasticity, and shorten.

When strain of the fore leg is received, the animal goes oddly, but is not lame. However, if put into the stable and taken out the next morning, the horse is found to be stiff and apparently very cramped. The halting action may disappear upon exercise; but assuredly it will again be present on the following dawn. The proprietor may resolve to work "the brute" sound. Such a speculation with disease may occasionally answer; but, on the large scale, it is a losing game, for it more often fails than succeeds: the limb, on work, commonly does not amend. The symptoms are aggravated in every way; and what was curable in the first stage is apt, after the lapse of time, to degenerate into an intractable malady. The many horses to be seen in the London cab ranks, with the fore limbs permanently contracted, are evidences as to the result of such very knowing treatment.

When a horse slightly strains the flexor tendon, do not expect to discover the seat of the affection till several hours have elapsed. Then pass the hand gently down the injured limb. A small swelling may be detected. The enlargement may feel soft, slightly warm, but hardly tender. Bind a linen bandage round the leg rather tightly, and keep this constantly wet with cold water. For the three first nights, have men to sit up in the stable and perform that operation. After that time, if everything goes on well, wet the limb only during the day.

Throw up the horse till more than recovered, and do not put it to full work till some period after that event. Give immediately four drachms of aloes. Allow only two feeds of corn per day; but do not turn out to graze, under the idea that it saves cost and gives a chance that the animal may be taken up sound. At grass, the horse must walk many miles to eat poor food, sufficient to support life. This kind of motion will not suit a strain, which does best with absolute rest. Keep, therefore, in a stall, and do not begrudge the necessary meat to support the life which has suffered injury, and is now enduring pain, in consequence of exertion made in your service.

CLAP OF THE BACK SINEWS.

When the accident is more severe, and the sprain more decided, it is spoken of as "**clap of the back sinews**;" this is a serious affair. The usual fate of the wretched animal thus maimed is to be sold to the highest bidder. It passes from a carefully-tended stable to some wretched out-shed; and its new master is made happy, if the crippled horse can only limp, and somehow get through a day's labor. No pity is wasted upon agony; "the beast," as it is now called, has to live worse, work harder, and drag out a miserable existence with the heavy burden of an almost useless limb.

Clap of the back sinews results from exertion; it may be the work of an instant. The horse sometimes is pulled up, or, in severe cases, it falls. If it be pulled up, it refuses to move at a quicker pace than a hobble, and stands still again so soon as whip or spur are not applied to the sufferer's body. The maimed limb is flexed, and rests upon the toe of the injured leg. There can be no mistake now about the seat of lameness; the foot of the affected limb will hardly be put to the ground. The seat of the malady is soon declared. In a short space a tumor displays itself; it is small, hot, tender, and soft, in the first instance, though it soon enlarges, and grows very hard. The animal does not exhibit much constitutional distress, for it requires excessive pain to call forth such a display in the patient and most enduring horse.

THE EARLIEST SYMPTOM OF CLAP OF THE BACK SINEWS, OR SEVERE SPRAIN OF THE TENDON.

Physic is necessary in this case; a gentle blood-letting, even, may be required, followed by a few doses of febrifuge medicine; but the treatment should be carried no further than is necessary to reduce the pulse to fifty-five degrees. The leg should be wrapped in a stout linen bandage; day and night the part should be saturated with the coldest possible water until the primary symptoms have abated. Cut grass should be the food while any fever rages, but no longer, for the wish is not to destroy the powers of reparation by weakening the body. The cold water should be continued till recovery appears confirmed; but it will be many months before the horse, thus disabled, will again be fit for full or energetic work. Commonly, however, this accident takes place in the hunting-field; and sportsmen,

THE BLEMISH LEFT BY CLAP OF THE BACK SINEWS.

silly as may be their amusements, are no niggards. If they occasionally injure a horse, they will spare no expense that can aid its restoration; and a summer's rest may not be thrown away upon the favorite which has met with such a mishap. However, the mark will remain for life—an obvious swelling will, during existence, denote the place where clap occurred to the back sinews.

SPRAIN OF THE BACK SINEWS.

Sprain of the back sinews of the hind legs is very general among animals which have to perform slow work upon hilly roads. People in the carrier trade can afford to bestow small attention upon the lameness which does not incapacitate. Every journey, however, aggravates the disease. The horse works on till his owner is told by the blacksmith the animal's legs are contracting, and higher calkins are given as a cure.

HIGH CALKINS.
The earliest attention commonly paid to sprain of the back sinews of the hind leg.

At length, however, calkins become of no use. The work continues, and the disease progresses. The position of the foot is now so altered, that the smith discovers his office is unable to render the animal useful. Perhaps these circumstances would little affect the owner, but the horse evidently loses power. At first it is longer on the road. The passengers grumble at the delay, (for country carriers reap no little profit by carrying passengers;) and the driver, flog as he may, can oblige the horse to move no faster. Excessive beating is apt to provoke pity; and every word of pity which is lavished on the evidently eager animal is distasteful to the carrier, who vents his anger upon the wretched cause of all "this rumpus."

THE SURE RESULT OF CONTINUED WORK AFTER STRAIN OF THE BACK TENDONS.

At last the horse cannot guide the cart down hill, even when lightly loaded. Assistance is at first procured; but very soon the assistant has to do all the labor. The proprietor cannot imagine what ails his horse; it keeps getting worse and worse. He takes the animal to a farrier. Remedies—oils and blisters—are applied to no effect. A veterinary surgeon is consulted, and the master learns that the only hope left him lies in division of the tendons of the hind leg.—(*See operation.*)

When a cart-horse's heel heightens, always attend to the back sinews. Feel them gently, to discover if one place is more

tender, harder, softer, or slightly warmer, than the rest. Should this not succeed, pinch them hard, and run the fingers down them, marking the part at which the animal flinches. Healthy tendon will endure any amount of pressure; diseased tendon is acutely sensitive. Having discovered the locality of the injury, order the hair to be cut short. Put a linen bandage round the lesion, and see that it is constantly kept wet; but do not expect a speedy cure. Those structures which are slow to exhibit disease are always tardy in resigning it. Bone and tendon are of this kind.

Therefore do not expect any relief before three months have expired, and it will certainly be six months before the horse is fit to resume labor. Do not blister, bleed, seton, or fire: these things are expensive, and occupy much time. Have patience. Grant the time which the supposed specifics would employ, and the effect, with or without their use, is very likely to be the same. The only remedy for a badly-contracted tendon is an operation, and to that subject the reader is referred.

The horse, however, which has been subjected to such a remedy will never be fit for its former uses. No art can restore the primary strength of nature, although human intelligence may arrest the progress of disease. The thought, that the consequences of ill treatment are not always to be eradicated, should surely induce greater care of that property which, once lost to man, can never be replaced.

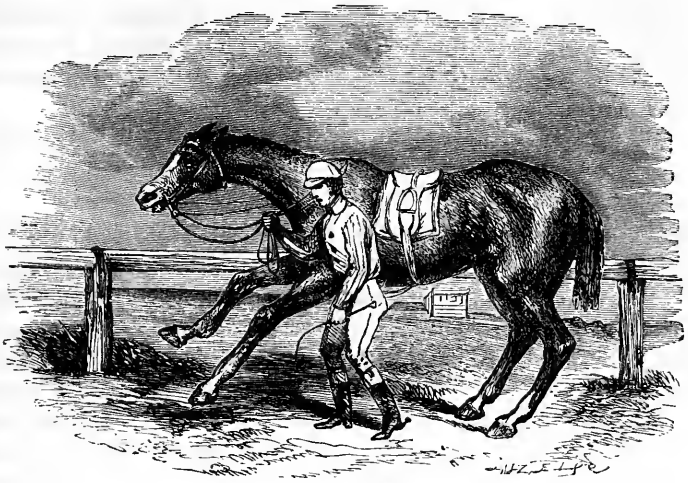
When a tendinous structure is injured, the best treatment is gentleness and patience. Blisters, setons, etc. can only change an acute disorder into a chronic deformity. Entire rest, with such applications as ease the attendant agony, and a sympathy that can afford to wait upon a tardy restoration, are better than all pretended specifics.

BREAKING DOWN.

Breaking down is the severest injury which the tendons can endure. In proof of this may be cited the general notion that, when a racer breaks down, some of the back sinews are ruptured. This, however, does not often occur; but though the tendons are, generally, only severely sprained, some of the finer tissues, which enter into the composition of the leg, are in all cases actually sundered.

The animal is at its full pace—doing its utmost, and delighting its rider, who feels confident of coming in first. Instantaneously the horse loses the power of putting one fore leg to the ground. The jockey knows what has taken place. He flings himself from the saddle, and hastily glances at the animal's foot. It probably is distorted; or, perchance, the accident may have taken effect higher up, and the injury

merely be severe clap of the back sinews. Be it which it may, with a heavy heart at loss of money and credit, thus suddenly snatched from him, the jockey leads the horse toward the stand, or, by the shortest road, to the stable.



BREAKING DOWN.

Many horses, after encountering this accident, are instantly shot. The poor animals, by such a proceeding, are saved from a painful cure and a crippled existence. Such conduct is, however, seldom actuated by thoughts of mercy. Nevertheless, to an animal of motion, whose every feeling is displayed by means of its limbs, and which is instinctively more perfect in action than the most accomplished ballet-master, the incumbrance of a leg misshapen, callous, and unwieldy, must be a serious affliction. The limb is spoiled for life in the horse which has broken down. The pain in time departs; the breathing becomes quiet; the pulse sinks to the normal point; the appetite returns, and the spirits grow to be as high as ever. But no art can replace the structures which have been disorganized; and the limb, after everything approaching to inflammation has subsided, remains a huge, unsightly object—an affliction to its possessor.

THE CONSEQUENCE OF "BREAKING DOWN" IN THE HORSE.

The treatment of breaking down has not been much experimented with. However, constitutional measures are, at first, imperative. At the same time, a bandage should be applied to the injured limb, and this bandage should be kept constantly wet with cold water. A high-heeled

shoe should be put on as soon as may be possible; but no treatment can hope to restore the horse to its departed agility, or even to fit it for ordinary usefulness. However, should it be a stallion or a mare, it may be as valuable as a sounder animal for stud purposes. Accidents are not hereditary; nor is there any reason why the foal of a horse which has broken down should not excel the progeny of a more fortunate sire. Among racers, emasculation not being the general practice, this opinion may probably save many a favorite from the doom which a disappointed proprietor now too often inflicts.

CURB.

This is one of the evils which chiefly are the property of the better breed of horses. Man delights to show off the animal he is mounted upon. Be it male or female, old or young, the equestrian is always pleased by the prancing of the horse. The creature seems to comprehend, and to derive gratification from obeying the wish of its superior. It enters into the desires of its dictator, without a thought of prudence or a care for its personal safety. In hunting or in racing, the simple horse more than shares the excitement of its rider, and often encounters the severest accidents in consequence of these amusements. That which is pastime to man frequently proves death to his amiable servant. Often is the animal so maimed by these sports as to necessitate its life being taken upon the course or in the field.

These reflections are very painful to any body who appreciated the loving and devoted character of the quadruped. Among the least of its sufferings probably may be reckoned **curb**, although the mark of the affection nearly always remains for life, and the misfortune sometimes quite disables the horse which incurs it. It consists of an enlargement, or a gradual bulging out, at the posterior of the hock.

A CURB.

There is some dispute about the seat of curb. The author examined a hock which had chronic curb, and found the perforan tendon disorganized. The late Mr. W. Percival (the respected originator of the very best work upon the horse and its diseases which is extant in the English language) also inspected a hock, and found the sheath of the tendon more involved than the tendon itself. However, a slight acquaintance with the mystery of anatomy assures us that the tendon must have been stretched when the sheath was injured, since the first invests and is inserted into the last. It is well known that synovial membrane is far more sensitive than tendon. It is therefore probable that the membrane would exhibit disease

before the tendon displayed the slightest symptom of being affected. The membrane is also capable of displaying the signs of injury long after every trace may have disappeared from the tendon itself.

The effect of the treatment at present adopted is to confirm the enlargement, or to change the swelling into a lump of callus, which will accompany the sufferer to its death. Curbs are said to be the inheritances of animals of a certain conformation. Horses born with what are termed curby hocks are asserted to be much exposed to this kind of accident. The author has, for many years, particularly inspected animals of this description; and he never recollects to have seen a curb upon a hock of that peculiar conformation. To be sure, no man is likely to select either a hunter or a racer from a tribe thus bearing upon their limbs the signs of weakness. The creatures are consequently exempted from the great provocatives of the accident. However, that the reader may fully comprehend what is meant by a curby hock, one is here represented, together with a sound or naturally-formed, clean joint.

A CLEAN HOCK.

A CURBY HOCK, SLIGHTLY BULGING OUT BEHIND.

The custom of blistering a horse the instant a curb appears is most injurious. Harm is done, in every point of view, by such a habit. The animal should have a high-heeled shoe put on immediately, so as to ease the overstrained tendon. The part ought then to be kept constantly wet with cold water, so as to lower or disperse the inflammation. It should not be blistered, to heat and increase the vascularity of the structures. A cloth, doubled twice or thrice, is easily kept upon the hock by means of an India-rubber bandage, of the form delineated in the accompanying engraving. Such a cloth, so placed, is afterward to be made constantly cool and wet.

AN INDIA-RUBBER BANDAGE, FOR KEEPING WET CLOTHS UPON A CURB.

This treatment should be continued; the animal being confined to the stall and made to move as little as possible, until the heat and swelling are diminished and the leg is almost sound. The part being quite cool, a blister should then be rubbed all over the joint; and with that this treatment, in the great majority of cases, is ended. On no account

should any man allow his horse's hock to be fired for curb. This is a very general practice; but the author has never witnessed any good result therefrom. He has, however, seen much agony ensue upon the custom. The form of the marks perpetuated upon the skin of a living creature is shown herewith, and were plainly visible in the case of curb, which the writer dissected.

THE LINES MADE, FOR SOME IMAGINARY BENEFIT, WITH A HEATED IRON, UPON THE HOCK OF A HORSE HAVING CURB.

Pulling horses up on their haunches is asserted to be a frequent cause of curb; yet curb is not an accident commonly met with among those animals which drag London carriages. These creatures are being constantly thrown upon their haunches, it being, by ladies, considered "very pretty and very dashing" to make their servants tug at the reins, regardless of the living mouths on which these operate. Pulling suddenly up, however objectionable for other reasons, does not seem to induce curb, as London carriage horses are all but free from that affection. The disease is mainly caused by uneven ground wrenching the limb; by galloping at the topmost speed; by prancing when mounted, or by leaping when after the hounds. Perhaps more curbs are to be seen in a district on which several packs are kept, than in any other part of the country.

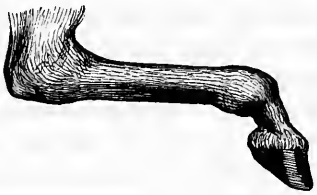
THE SUREST MANNER OF PRODUCING CURB.

OCCULT SPAVIN.

The horse is subject to many fearful maladies, but to none which is more terrible than ulceration between the bones composing the joints. Synovial membrane, cartilage, and bone are without sensation during health. The author hopes his reader is not conscious of a bone in his body; it is also wished that he may read with surprise, that the ends of bones are covered with cartilage, and that many are invested with synovial membrane. As has already been observed, these structures in health are not sensitive; but when disease starts up, be it only the slightest blush of inflammation, the acutest anguish is thereby occasioned.

Ulceration of the joints is, unfortunately, rather common among

horses; the animal, while being ridden, usually drops suddenly lame. It has trodden on a rolling stone, or made a false step, or put its foot into some hole, and injured the bone. After a little time, continuance of the impaired gait causes the rider to dismount; nothing is to be found in the foot, yet the animal is taken to the stable decidedly lame. The foot is searched, the limb is examined, pressure, even of the hardest



THE EXTENT TO WHICH THE LEG IS CAUGHT UP WHEN OCCULT SPAVIN EXISTS; ALSO THE VIEW OF THE FOOT PRESENTED TO THE SPECTATOR WHO IS PLACED AT THE SIDE OF THE HORSE, WHEN, DURING THIS DISEASE, THE LEG IS IN MOTION.

kind, is endured with provoking complacency. No heat or swelling can be discovered; but one thing is to be discerned, the lameness is most emphatic. After some time, a peculiarity in the trot may be remarked; the lame foot hardly touches the earth before it is snatched up again, and that very energetically. Then, closer observation notes that the leg, when flexed, is always carried in a direct line, as it is when displaying the symptoms of bony spavin. The hoof is never even partially turned outward. Still, neither of these traits is always displayed in so prominent a manner as to force attention; frequently, a conclusion is to be drawn only from negative testimony—as the duration of the lameness, the soundness of the foot, and the perfect condition of the tendons; these evidences, taken with the suddenness of the complaint, cause the practitioner to comprehend he has a case of **occult spavin** under treatment.

Such is the origin of the disease: some authors assert the synovial membrane has been ruptured; some, on the contrary, say the bone has been injured. The author, knowing nothing, cannot tell how the disease begins, but he knows that from the date of its origin the horse is lame; very bad one day, but better, probably, the next. Generally improved after rest, and always badly limping subsequent to work; never to be depended upon, for proprietors say the animal is sure, wherever its services are required, to be obstinately lame.

Usually the wretched horse is blistered; setoned; blistered again; and, at last, fired. All failing to do the smallest good, the horse is next turned out for three months; while at grass, the poor animal, with an acutely diseased joint, which is enlarged and stiffened by mistaken treat-

ment, has to take one step for every morsel it bites of poor and watery food. It is forced to travel long and far, or literally to starve; its body must rest upon the ulcerated bone, and the weight even be increased by the pendulous head before enough herbage can be cropped to sustain the life. At every step two ulcerated surfaces grate upon each other and are forced violently together; while anguish consumes the flesh, the nature of the food may keep in the life, but cannot otherwise than depress the spirits. Besides, the horse has been turned from a sheltered stall where it was daily groomed, into a field where it has to brave the utmost stress of the elements, uncared for and unnoticed.

At the end of three months the horse is taken up: to the master's disgust, it is found to be not looking smarter and not to be going sounder. More routine treatment is now permitted, and the diseased limb undergoes further torture; another three months is passed, and the lameness becomes worse than ever. The proprietor is loath to part with his property; but he often says "he wishes the animal were dead." At last, losing all patience, and never having possessed any care for the life which had suffered injury in his service, the horse is lent to some carter, who undertakes to "work it sound." This process never, in occult spavin, succeeds; the wretched quadruped gets worse day by day, till neither oaths nor lashes can prevent misery from limping on three legs.

At length, worked to a skeleton, the horse is returned to its proprietor, who, inviting pity upon *his* misfortune, that life will feel, and that horse-flesh is subject to the ailments affecting all creatures which breathe, orders his servant to take "the beast" to the knacker's and to get what he can for it.

Such is the history of ulcerated joint. All joints are exposed to ulceration; every bone in the fore and hind leg may be thus affected. The small bones of the hock are those most commonly diseased; whenever this is the case, the only termination which can reasonably be hoped for is that the inflamed surfaces may be united. The bones are then bound together by osseous union, and are, of course, firmly locked; they are no longer capable of the slightest movement one upon the other; but this is no vast evil: many animals are now at work having the smaller bones firmly united by osseous deposit. Horses in that condition are far from useless, even for the highest purposes.

The man whose animal gets ulceration of the hock-joint ought to allow the injured quadruped even twelve months of uninterrupted rest. The first thing is to get the sufferer into slings; the earlier this is done the better; it takes off the weight from the affected joint, relieves the pain, and gives the system full opportunity to rectify the lesson. To draw blood to the part and so promote deposit, rub in, once every two

days, some of the embrocation recommended in the article on "Rheumatism," which is thus composed: of soap liniment, sixteen ounces; liquor ammonia, tincture of cantharides, and of laudanum, of each two ounces. There need be no fear of applying friction; the utmost pressure made upon an ulcerated joint can call forth no response. When the joint is embrocated, wrap the part loosely in flannel, using an elastic webbing to fasten the portion above and below the hock, and not tying any fastening around the painfully-diseased member; give three feeds of corn, a few old beans, and sweet hay for each day's support, while the treatment lasts.

The improvement will be denoted by the animal bearing upon the affected limb; after three months or longer, the slings may be removed; in another three months, the horse, should the pace be sound, may perform gentle work. However, the first three months must be reckoned from the date when the animal commenced to bear continuously on the ulcerated joint; in short, the slings are not to be removed until long after the quadruped has, by its carriage, declared them to be useless. Then, for the three subsequent months, the work must not be violent; time should be allowed for the union to be confirmed, for, among the many diseases the horse is exposed to, there is not one more treacherous or more liable to relapse than occult spavin.

Such is all that is necessary for the treatment of this disorder; rest—perfect rest, with food capable of supporting nature in the reparative process—is everything which is absolutely necessary. A loose box even does injury, so entire must be the rest, which should be as near to stagnation as it is possible to make it. The embrocation is simply recommended to draw blood to the part, and promote the required deposition. One caution only is necessary—give no purgative; keep the bowels regular by means of cut grass and bran mashes.

THE DISEASED BONES OF THE HOCK. THE DARK PLACE INDICATES WHERE THE ULCERATION IS GOING FORWARD.

If the above measures fail, as in the majority of cases they certainly will, nevertheless good will have been done by abating the violence of the ulcerative process. Before the last resort of all is adopted, another chance remains, which, as an experiment, is justifiable. Puncture the joint—a very small incision will be required; have the limb forcibly retracted or pulled backward; then inject, with a syringe having a fine point, about one ounce of dilute spirits of wine, in which is dissolved half a drachm of iodine. Immediately afterward place the animal in slings, and apply cold water to the hock by means of the India-rubber bandage described

in the preceding article. Keep the horse liberally so soon as the pulse becomes quiet, and do not allow it to leave bondage till the tread is firm; as exercise is endured, work may be very gradually resumed.

Remember, the above is proposed only as a last experiment; the design is to change the ulcerative action to one of a secretive character, and thereby promote union of the diseased bones. A trial of this kind has never been instituted; but, certainly, judging from the result of a similar operation upon the human subject, there are the best grounds for anticipating good effects. That it may be known where to make the puncture, a drawing made from the bones of a diseased hock is inserted on page 311; the darker line marks the place where the ulcerated surfaces existed, and into which the fluid should be injected. This, however, is so nice an operation that, although unattended with any immediate danger, none but a skilled anatomist should undertake it. In proper and judicious hands it is perhaps as safe, and more likely to be accompanied with benefit than the great majority of veterinary remedies.

RHEUMATISM.

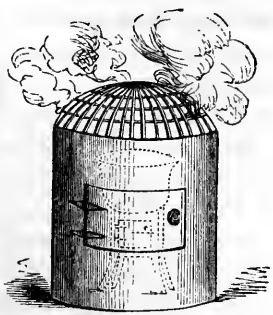
This form of disease in the horse is commonly known as following more serious affections. After influenza it is very frequent; it is not rare as coming in the train of thoracic disorders; most important organs, being acutely affected, will leave it behind them. On rare occasions it may appear without any forerunner.

Its advent is announced by swelling about the joints, accompanied by the most painful lameness; the animal may not dare to put its foot to the ground. Often the disease flies about, now seizing upon one or two joints, next attacking the hitherto free members, and generally clinging to similar parts, as the hocks, knees, etc. Then it will return to its former abode—thus shifting about, to the torture of the animal and the confusion of him who may undertake its relief.

One almost constant symptom is an increase of synovia. For synovial membrane, whether in the sheaths of tendons or on the heads of bones, rheumatism always displays a marked partiality. This structure is, as has been already noticed, without sensation during health; in disease, however, its involvement communicates extreme agony. The afflicted horse stands with difficulty; its pulse and its breathing declare its sufferings—both are quick and jerking; the limbs may be greatly swollen; and the parts secreting joint-oil bulged out, soft, and puffy, from the increase of their contents.

No disease is accompanied with such long and extreme pain as rheumatism; the remedies, therefore, should be quick and effective. Procure

the steaming apparatus recommended for bronchitis; fill the warm, loose box, into which the horse should be brought, with vapor; while that is being accomplished, get ready the slings; put the belly-piece under the animal, and fix them so as not to take the entire bearing from the ground, but so as to relieve the diseased joints of some portion of their burden, and allow the horse to rest its body when it is disposed to repose.



THE STEAMING APPARATUS USED IN BRONCHITIS.

Keep up the steam for one hour; at the end of that period, have several men ready with dry cloths—wisps would be too exciting; let the men wipe the horse quite dry, with as little noise and as much speed as possible. This over, order some of the assistants to put on the hood and clothing, also wrapping the sound limbs in flannel; the disengaged helpers are to go upon their knees and rub into and about the seat of disorder a liniment thus composed:—

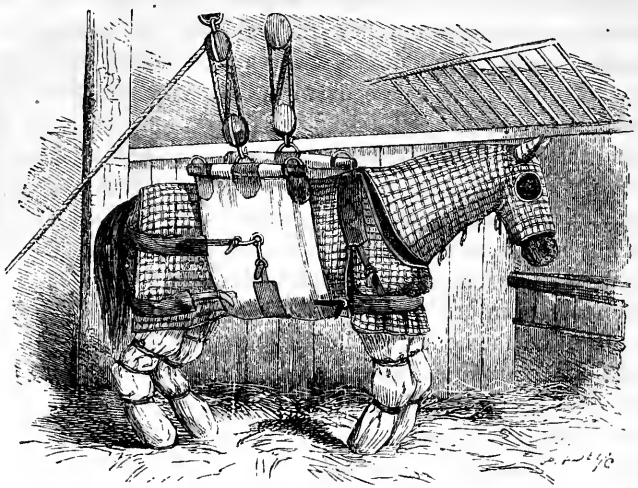
Compound soap liniment	Sixteen ounces.
Liquor of ammonia	Two ounces.
Tincture of cantharides	Two ounces.
Tincture of opium	Two ounces.

When the liniment has been applied, incase the affected limbs in warm flannel.

Many persons are at a loss to comprehend this last direction; it is easily accomplished. Have ready some rings of elastic webbing to fasten over the members; also procure four pieces of flannel, each rather more than the length of a limb. To the small ends of two pieces of flannel, one yard and a half long, attach a band of broad, elastic webbing, and fix a buckle and strap at the other terminations; at similar points of the other two pieces of flannel, only these last are to be two yards long, likewise fix broad elastic bands, and also append a buckle and strap. Place the long pieces of flannel by the hind limbs; put the shorter flannels by the fore legs; buckle the straps, the fore ones over the withers, and the hind straps over the loins. This will keep the flannel up to its proper height; fasten it with the rings of elastic webbing to the hoofs, while the assistants are wrapping it loosely round the limbs.

The horse being in the slings, no surcingle can be put on, nor is any needed. The animal with acute rheumatism is certain to stand quiet enough. So much being accomplished, give the horse a bolus formed of powdered colchicum, two drachms; iodide of potassium, one drachm; simple mass, a sufficiency.

These measures are to be taken regardless of the condition of the body; if the attack, however, follow another disease, the bodily support must not be too low. It should be all prepared or softened by the action of heat and water; the oats should be of the best description;



A HORSE DRESSED FOR RHEUMATISM.

they should be crushed and boiled; a few old beans, also boiled, may be added, and a malt mash occasionally will do no harm. To open the bowels, and likewise to allay excitement, give green-meat when required; but do not make a practice of allowing this sort of food in quantity, as it blows the animal out, weakens the digestion, and soon loses all laxative effect.

Next morning repeat the steaming, etc., and give a ball composed of a scruple of calomel and two drachms of opium; allow only five pounds of hay during the day. At night, again steam, etc., and give the ball which was recommended on the first occasion.

When the horse begins to bear upon its legs, should the liniment not have blistered the joints, the following may be applied with a soft brush, but without friction:—

Tincture of cantharides	One ounce.
Camphorated oil	Half an ounce.
Tincture of opium	Half an ounce.

The horse may be of a full habit when affected; in that case, pursue the measures already recommended, but do not give the food before advised; instead, allow bran mashes twice a week, and a bundle of green-meat once a day, and sweet hay must make up the sustenance for twenty-

four hours. Should the horse, however, appear to lose flesh and spirit, boiled corn must form a portion of the diet, and the quantity can be regulated only by him who has charge of the case.

One caution must be given before concluding this article. A sick animal is very sensitive as to noises; a door banged to will excite the terror of the poor creature, which, probably, was half asleep, with the head hanging down. A loud word or an energetic action will not unseldom call forth symptoms of such alarm as may threaten, through their utter recklessness, to demolish the structure in which the horse is confined. For these, if from no purer motives, respect the sufferings and wisely try to soothe the animal. As the creature is devoid of reason to shape its fears, approach it noiselessly; speak softly at first; ascertain—although the eye be closed—by the motion of the ears, whether your voice is heard. Then lay the hand upon the neck and gently caress the sick body; after that you may do what you please, so nothing be very sudden or very loud.

Such slight considerations will not be thrown away, even in a medical point of view. A moment of excitement may do the injury which no physic will remove; nay, in critical stages, many a life has been lost from want of thought in the attendants about a diseased horse.

DISTENTION OF SYNOVIAL MEMBRANE—WIND-GALLS.

Man treats the horse after a strange fashion. He buys the animal for a large sum, because it possesses some particular quality; but, hardly has he obtained it, before he behaves as though he desired only to destroy the property he has so dearly purchased. A horse, for private use, is generally bought for its beauty; in a short time afterward it is sold as having become too deformed for its master's service. A year or two commonly suffices to spoil the most perfect animal. Many are ruined in their colthood; many more are made worthless by the trainer. Of all creation, the horse is most abused. So universal is this custom that the marks of ill usage are in the market even regarded as if they were natural consequences. Those affections designated **wind-galls** are generally lightly esteemed by most horsemen when the animal is required for actual service—as hunting, racing, coaching, etc.

Such marks, however, are evidences of hard work having been performed. They are not natural formations; but are blemishes, which man, in his consideration for a dumb servant, is pleased to make light of. They do not generally impede the action—and lameness is the only fact a true horseman cares to notice. He will not stay to inquire what must have been the kind of work which could occasion the **synovial**

membrane to bulge out upon a living body. He does not care to ask whether Nature, when deformity first appeared, instituted the fact without intention. He will not condescend to question whether every unnatural appearance is not designed to be a warning. But he views wind-galls rather as a proof that the poor animal exhibiting them is a seasoned horse, and, therefore, is bettered by the distortion of a sensitive structure.

Wind-galls are the result of severe work. The back sinews are incased in a fine sheath which contains synovia, or, as it is commonly termed, "joint oil." The use of the synovia is to facilitate the motions of the two great flexor tendons one upon the other; so, when the pace is too fast or the labor too energetic, the delicate membrane which secretes the synovia becomes irritated. The consequence of irritation is increased secretion. More joint oil is poured forth than the natural sac can contain. The membrane, therefore, bags out at those parts which are weakest. Two such places are situated above the fetlock and one below it. The localities, with the size of the tumors, as they generally are exhibited, the reader will find delineated in the following engravings.

THE SITUATIONS AND SHAPES OF WIND-GALLS.

WIND-GALLS, AS THEY APPEARED TO THE AUTHOR, UPON DISSECTION.

Wind-galls generally appear on the hind leg. They used to be regarded as swollen bursæ; but Mr. Varnell, Assistant Professor at the Royal Veterinary College, by careful dissection, first pointed out their real character. He proved them to be synovial enlargements; and the writer, benefiting by Mr. Varnell's instruction, has verified the fact.

Very slight physiological knowledge was required to detect they were not bursæ. Bursæ are little round sacs, secreting a fluid like synovia, but always placed so as to facilitate motion. Now, wind-galls appear close to a synovial sheath ordained to serve the same purpose. They, moreover, start up in the hollow between the flexor tendons and the suspensory ligament, in which arteries, veins, nerves, and absorbents reside. The merit in discovering they had been misnamed was, per-

haps, small; but the credit of demonstrating what they actually were—which demanded a more elevated talent—remains with Mr. Varnell.

Wind-galls are fond of the hind leg; or rather, the hinder limbs do the heaviest portion of the horse's work; therefore these deformities are commonly found on those members. There may be one or three on both sides of each leg: they generally are quiescent; but occasionally they prove wind-galls to be something more than the simple blemishes which man is pleased to esteem them. After a hard run it is not unusual to hear a huntsman complain that the wind-galls have disappeared and the back sinews of his hunter have become puffy. When that occurs, the entire sheath suffers excessive irritation, and has enlarged. The horse is then very lame, but a day or two of rest reduces the sudden enlargement, and the animal recovers its soundness.

THE DISAPPEARANCE OF WIND-GALLS AND THE PUFFINESS OF THE SYNOVIAL MEMBRANE, PROPER TO THE FLEXOR TENDONS, WHICH ENSUES UPON EXCESSIVE LABOR.

Sometimes, however, repeated irritation starts up a new action; the secretion becomes turbid, displays enormous floating threads of cartilage and occasional sanguineous infiltration; the sac enlarges; the walls begin to thicken; the tumor feels less pulpy and more firm; it grows harder. First becomes cartilage, and ultimately may be converted into bone. Mr. Gowing, of Camden Town, has a fine specimen of this species of disease.

During these changes the animal is very lame; yet wind-galls are so lightly esteemed by horsemen as scarcely to lessen the price of a steed; they are, in general, accounted hardly worth mentioning, although men have been known to be strangely anxious to have them removed. This, however, is not easy to bring about; all the common methods are worse than useless; the only treatment which promises any benefit is the application of pressure. Fold a piece of soft rag several times; saturate the rag with water; lay upon the wetted rag one drachm each of opium and of camphor; put these upon the enlargement. Upon the moistened rag place a piece of cork big enough to cover the wind-gall, and of such a thickness as may be necessary; above the cork lace on a vulcanized India-rubber bandage. Constant and equal pressure will by these means be kept up; however, mind the groom be strictly ordered to take the bandage off the leg the last thing when the horse leaves the stable, and to put it on again immediately on the animal's return; otherwise, the proprietor may chance to enter the building and find his

steed without an application, which, to be beneficial, should be perpetually worn.

Such is the history and the occasional termination of wind-galls. What kind of man is he who, when purchasing a horse, can confidently assert the animal will not exhibit the worst stage of the affection? A horse displaying wind-galls is prepared for the advent of the more serious form of disease; still, horsemen will persist in deeming synovial enlargements a trivial affair, when seen in the body of a creature whose utility resides in its power to move the limbs with agility.

BOG SPAVIN.

Bog spavin is a mark which man makes to signalize his authority over breathing flesh; man, in his stupidity, will form notions of what animals should be; he will not learn from nature. Thus the horse, which is made up of timidity and affection, he loves to chronicle as fierce, fiery, noble, and courageous; he talks largely of having mastered such or such a creature; he boasts highly of having laid whip and spur to a "brute" which, had he courted with gentleness, and wooed with sympathy, might not have been subdued so quickly, but assuredly would have been attached to him for life.

The hocks suffer severely through such erroneous opinions. These convictions are widely spread and influence every horseman; they control the breaker, who acts as though he had a wild beast to conquer into a show of submission, not to train a living animal which is naturally willing, only afraid to submit. Instead of courting such a being, the bit, the lash, and the cold steel are brought to bear upon a frame every fiber of which already quivers with alarm; many a colt, consequently, is ruined by the breaker. The creature is pulled up with a tug at the reins; and pain never yet enlightened an understanding; the horse is forced to do what he would cheerfully perform, if man would only take necessary trouble to communicate his wishes to a creature which, not comprehending words, is naturally somewhat slow to interpret heavy chastisement.

BOG SPAVIN, OR DISTENTION OF THE PRINCIPAL SYNOVIAL MEMBRANE OF THE HOCK-JOINT.

The breaker, however, is considered equal to his office, if he be a light weight and a very resolute man. The young colt is sprained and jarred in every possible manner; it is at last returned to its master more than half broken—in the literal sense—for the seeds have been sown which, in time, will assuredly crop into a host of virulent diseases.

This affection is an increase of synovia in the upper or chief joint of

the hock; it lies upon the most inward and forward portion of that part. The increase of the contents causes the membrane to bulge out after the manner represented in the wood-cut on page 318.

It is produced by repeated shocks to the limb, and in this respect resembles wind-galls; though situated in a different locality, it is also liable to the same changes. In short, the affections are the same, and are dissimilar only with regard to their relative situation.

Bog spavin is thought slightly of by professed horsemen; however, the reader must ask himself, if it be viewed as no deterioration, can it be also regarded as a recommendation? Is a blemished leg, or a limb with disease, which is liable to assume an aggravated type, properly considered a sound member? The writer thinks not. Bog spavin does not, in its ordinary stage, lame the horse; but can such an unnatural enlargement add to the pleasure of the animal's existence? Were pain in man judged of entirely as it affected the walk of the human being, the disorders of how many people would the doctor esteem of little consequence! Such a standard of agony is ridiculous. It is most difficult to say when no anguish is felt by the life which is denied the faculty of announcing its sensations through the medium of speech.

THOROUGH-PIN.

This disease is so called, because in some cases it pierces right through the thinnest part of the hind leg, or appears on either side immediately before the point of the hock. It, however, is often single. It is rarely present without bog spavin; and in every instance which the author has examined, it communicated with the large synovial articulation of the joint.

THOROUGH-PIN.

It is provoked by the same causes as generate bog spavin; it is similar to that disorder in not being generally accompanied by lameness, and in being liable to the same fearful changes. Pressure and rest are the best remedies; pressure, applied after the manner recommended for wind-galls, may in some cases answer. The bog spavin and the **thorough-pin**, however, should not in every case be treated at the same time; as a general rule, it is prudent only to attack one affection by means of an India-rubber bandage. This should be so cut as to release the bog spavin from all pressure; and where the slightest uneasiness is evinced, all bandages should be instantly removed, while the corks and cloths—employed as for wind-galls—are taken off the thorough-pin.

It is never well to attempt to cure the bog spavin first; the treatment

ought always to commence with the thorough-pin; therefore, for a horse which will not endure the bandage, a truss must be procured from the instrument-maker. The truss is of the ordinary description, only adapted to bear upon the parts. This will probably act with efficacy equal to the bandage. When the truss has performed its office, then a perfect India-rubber bandage may be safely applied. Only, mind and also employ with the last the corks and cloths; else, when endeavoring to remove one disorder, you may reproduce another. Watch the animal while wearing the bandage; on the slightest change, either in habit or appearance, remove the India-rubber. Should the pressure affect the skin, (as it will in certain cases,) rags, thoroughly wetted, should be wrapped round the hock before lacing the bandage up. If the rags appear to be of no avail, it is better to forbear for a time, and to renew the attempt hereafter.

The horse which exhibits bog spavin and thorough-pin also generally shows wind-galls on the hind legs. Let the reader consider the hard usage the limb must have undergone before it could have become thus deranged. Here is a specimen, demonstrating the connection which exists between thorough-pin and bog spavin. It was made in consequence of Mr. Varnell having informed the author that thorough-pin was a bulging out of the synovial sheath, proper to the flexor tendon; and was not, as is generally taught and credited, an enlarged bursa. The author found them to be in accordance with the description he had received: the enlargement called thorough-pin, and the synovial membrane of the hock, had united, and free communication existed between them, in the joint which the writer examined.

DISSECTION OF THOROUGH-PIN AND BOG SPAVIN, DEMONSTRATING THE JUNCTION OF THE TWO AFFECTIONS.

Nature formed the synovial cavity of the joint as a distinct and separate part. It is usual for teachers to promulgate a maxim that Nature is all-wise. Man, however, it appears, can violently disarrange her provisions; yet, by his fellow-men, he is accounted to have done no wrong who destroys the harmony of Nature. Thorough-pin is not, in popular estimation, essentially unsoundness. A horse thus disfigured is believed, nay, professionally pronounced to be, perfect, although two distinct parts are battered into one. If two are beneficial, why was one only created? The horse may not be lame; but, granting Nature to be all-wise, must not the uses for which the limb was designed be injured? The question is not, whether an animal trots sound; but it is, whether it really is sound. What sane man would assert such to be the case, where the anatomical structures have been disorganized?

CAPPED KNEE.

Capped knee, in the fore limb, answers to bog spavin in the hind leg; the diseases are alike in most respects. Both affect the principal articulation of a complicated joint; both may be provoked by the like causes; but the fore leg, being less exposed to shocks than the hinder member, must have been much abused before it could become thus deformed.

Blows, also, are common originators of capped knee. This disorder is likewise peculiar for a course it takes. The fluid within the swollen joint is, upon excitement, secreted in such quantity as to tighten the enlargement. Ultimately it lames the horse, and at length bulges out, or points, after the manner of an abscess. If let alone, it would burst. Much of the surrounding parts would have to be absorbed or would be effectually destroyed before such a termination could ensue. The life would be endangered, or a lasting blemish would be left behind. To prevent this, the surgeon draws the skin to one side, and, holding the point of his lancet upward, opens the capped knee upon its lower surface. A quantity of synovia, more or less in a turbid state, escapes, and an open joint remains. For the treatment of this contingency, the reader must turn to "Open Joint." (*Injuries.*)

THE SYNOVIAL MEMBRANE OF THE KNEE-JOINT ENLARGED.

Capped knee is, by certain persons, viewed as a trivial accident. Generally, however, it is regarded in a more serious light, because it is *more conspicuous* than bog spavin. We also should object to it, because, while liable to the same changes as wind-galls, etc., it is also likely to expose the horse to an open joint. It is, like wind-galls and bog spavin, to be reduced by pressure, though sometimes pressure will call up aggravated symptoms. Rest is the best treatment; during the rest pressure may be safely applied. Pressure does not answer, however, while the limb is exposed to the irritation of work. The horse must be thrown up during treatment, and gently used after the animal has been patched up or "cured."

CAPPED HOCK.

When an injury is formed near an important part, Nature is so conservative of her creature's welfare that she always has some means ready to preserve the utility of the structure. Thus when, from external violence, the hock becomes capped, or a swelling like to that represented in the following engraving ensues, to prevent the joint being

thrown out of use Nature allows the skin to enlarge. The cap of a hock, originally, was a bursa. A bursa is a little bladder or round sac, formed of the finest possible membrane, and filled with a fluid similar to joint oil. Its use is to facilitate motion; hence it eases the tightened skin over the points of the bony hock. But when it becomes deranged and swollen, the skin, which was dense, hard, and solid, stretches so as to cover the increase of bulk.

The tumor, however, having been produced, may in time subside, should the injury which provoked it not be repeated. Too often, however, the cause springs from motives over which the animal has no control; and the violence being renewed again and again, the swelling enlarges, and that which was soft and pulpy at first becomes hard to the feel, while all

CAPPED HOCK.

THE LARGEST SPECIMEN OF CAPPED HOCK WHICH THE AUTHOR HAS MET WITH.

sensation of fluid disappears. The provocative being repeated, the part first grows firm, then solid, while its bulk also enlarges to a fearful magnitude. There appears to be no limit to the size; but the largest the author has encountered was nineteen inches in its greatest circumference, and seriously interfered with progression. Above, on the right hand, is a portrait of the tumor.

These unsightly growths have two causes—the ignorance of the groom and the timidity of the animal. To speak of the last first: Dogs will dream; often, as they lie before the fire, they work their legs and utter suppressed noises, being at the time soundly asleep. Dogs also have imagination. Almost everybody must have remarked the dog slink away from some object which is to be indistinctly seen in the dusk of evening. Nobody, however, seems to have credited the horse with either of these faculties. Because it is of service to man, it is appropriated, and the attributes belonging to the creature are overlooked; the groom locks the stable door, and, having bedded the horses down, leaves them in the dark, "comfortable" for the night. One dreams—awakens in terror, similar to that which causes children to start out of their sleep with terrible crying. The hind legs are the means of defense with the horse; it has no other, for it seldom, and not habitually, employs its teeth. The animal, in alarm, begins kicking, for terror becomes powerful as the

reason diminishes. Animals have passions; these man can, in himself, subdue with reason; but the poor horse has no reason to restrain its emotions. Fear, once awakened, unopposed, possesses it; it begins to kick before it knows why. Bodies of men are exposed to panics. Can we wonder, therefore, at a timid and unreasoning animal being subject to the same influences? The kicking commenced, terror spreads; and a whole stable full of horses, each chained to its stall, each alone, forbidden the consolation of society, and prevented from scampering from the unknown horror, takes up the action; thus thirty or forty horses may be heard, in the depth and darkness of a night, kicking at the same time. The hind legs, when forcibly projected, are apt to hit the point of the hock; the bursa there developed is injured by the blow, and a capped limb is the consequence.

Another cause is kicking while in harness. This habit is always attributed to vice: to speak of vice as associated with the ideas of a simple animal is purely ridiculous. Fear is a much more probable cause, if man would only expand his understanding to comprehend the motives likely to actuate an unreasoning creature; vice is far too heroic an impulse, far too human a failing, for the horse to embody. Fear is essentially an animal passion; that some mighty influence agitates the quadruped, when it begins to kick in harness, is proved by the serious accidents the horse encounters through this habit. No life can be careless of its own existence; all creatures are conservatives where their own being is concerned. Would mankind only admit this fact, and seek to gain the confidence of, as they now labor to establish authority over, the horse, gentle words, spoken when the impulse was awakened, might reassure the animal, and would thus frequently save the owner from impending danger.

A third cause is lazy drivers riding on cart-horses, when unhooked, as leaders of the wagon; the poles, called spreaders, which keep the chains asunder, frequently hang so low that, at every movement of the leg, they strike the point of the hock. The uneven paving of some stables is likewise said to produce the disease; in short, anything which may cause the point of the calcis to suffer violence will produce a capped hock.

The cure for capped hock has been differently directed. Some hobble the hind legs of the horse, to prevent its kicking in the night; some fasten a chain and a log to one hind limb, for the same purpose; others suspend a piece of loose cloth at the back of the horse; but the best plan is always to leave a lantern lighted in the stable. The power to see around reassures timidity, while darkness is an awful instigator of terror; horses often fly back in their stalls, but never kick, during daylight.

Then, as to the cure: Such a tumor, when recent, is hot and somewhat painful; at this time, keep it wet with cold water or with a lotion formed of spirits of wine and water in equal parts; when the tenderness has subsided, procure some men who want employment and have strong arms; set these fellows to rub the cap of the hock constantly, and the tumor, in three or four days, or in less time, will have disappeared.

Should the enlargement, however, have become hard, the knife then must be employed; the horse must be cast, and the substance must be carefully dissected out without opening the sac. This being done, remove none of the skin; leave that bagging about the hock; simply treat it with a lotion composed of chloride of zinc one grain, to water one ounce, and the integument will contract. Ultimately there will remain no more than will be required to cover the part, whereas, if any be taken away, the wound, which in these cases never heals quickly, will be very long before it closes, and, in proportion to the skin which has been removed, there will remain a lasting blemish.

THE SKIN FROM BENEATH WHICH THE TUMOR OF CAPPED HOCK HAS BEEN REMOVED.

There is another caution we have to give the reader before leaving this subject; let no advice persuade, no temptation induce him to puncture, seton, or merely to open capped hock. The membrane lining the swelling is, when diseased, so extremely sensitive that the writer has known the lives of animals endangered by these so-called remedies. The author, moreover, never knew the enlargement to be much reduced by these means; neither has it been the author's lot to witness much good follow the application of blisters. No; extirpation is the only remedy, and it should be accomplished without puncturing the sac; this is as safe an operation as there is in the entire range of veterinary surgery. There is neither nerve, muscle, membrane, vessel, nor any important structure to avoid; with ordinary care, the removal is most easy. There is but one thing annoying connected with the business, and that is, the length of time which the healing of a necessary wound, made upon a point of motion, almost invariably occupies.

CAPPED ELBOW.

This is very common, especially among cart-horses; it is attributed to the calkin of the fore foot; to the point of the hind hoof; or to a stable floor, thinly bedded, and composed of sharp stones. So, likewise, blows with the butt-end of the whip will induce it; but the harness probably guards the elbow, which therefore can be struck only in exceptional cases.

It consists of a bursa, which, as in the former instance, has been injured, and has consequently enlarged; in appearance and in its subsequent course it greatly resembles capped hock, from which it differs only in a greater liability to ulcerate and become sinuous when allowed to remain until it is of extreme magnitude. It is said to derive that unenviable peculiarity from being situated nearer to the center of circulation. Capped hock is so little disposed to take on such a form of disease that the author cannot remember having seen a case of the kind; with a tumor on the elbow, however, ulceration is unfortunately too common. That probability should forbid the owner to allow the tumor to attain any great size; when large, moreover, it is apt to encircle the elbow-joint, and then its size seems to render the removal apparently impossible. It, however, may be extirpated. All said of capped hock applies to capped elbow.

A CAPPED ELBOW.

LUXATION OF THE PATELLA.

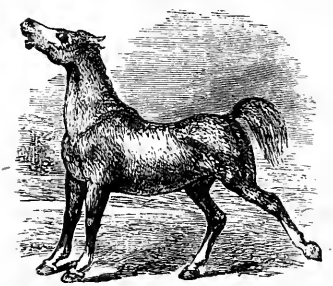
That is displacement of the whirl-bone of the stifle, (which answers to the knee-cap of the human being.) Such an accident, fortunately, few horses incur; there are many veterinary surgeons who, during a practice extending over many years, have not encountered a single case; whereas other gentlemen will have hardly started in their profession before **luxation of the patella** is submitted to their notice. It is not peculiar to any district, it is not confined to any special breed; it may affect all kinds of horses in all sorts of places; for it is produced more by the parsimony or the uncharitableness of mankind than by any fault in the structure of the animal.

In several localities throughout the country agriculturists, under the notion of saving money, determine to rear horses on short grass. The creatures are out in the fields during all kinds of weather; the body becomes debilitated under such a starvation system; those parts which are naturally weak become weaker, while those structures which were originally endowed with strength grow comparatively stronger. The beautiful balance of nature is overthrown, and each portion becomes at discord with all the rest; any trivial disease may destroy the life thus at war within its own dominion. Colts frequently exhibit luxation of the patella before they are broken; but it is always provoked by weakness, and commonly only seen where the management is faulty or the food is stinted.

When the whirl-bone is displaced, it is always found as an unnatural

lump upon the outer side of the thigh; it cannot, for three sufficient reasons, be drawn to the inner part of the leg. The inner condyle of the humerus, over which the patella plays, is sufficiently large to oppose any unnatural motion in that direction; the inner ligaments are the weakest, and are, therefore, most readily stretched in the outward direction; the circumstances permit the bone to be displaced from the inside of the leg. Then, moreover, the muscles are altogether more powerful upon the outer side. Any force acts more energetically as debility increases, and, to favor it, there is less resistance in the direction opposite to which the force pulls; for these reasons the bone is invariably luxated upon the outer side of the animal's haunch.

The symptoms denoting luxation of the patella are: the leg thrust out behind, and remaining fixed; the horse's entire frame is affected; the head is erect; the muscles quiver; the pastern of the protruded leg is violently flexed; there is an unnatural swelling upon the outer and lower part of the buttock. If the animal be forced to move, it can only imperfectly hop upon three legs; such an accident may occur at any time, and never be repeated. It may, however, become so common as to be mistaken for a species of habit; for luxation of the patella, when by frequency confirmed, will take place upon the slightest possible cause.



THE PATELLA, OR WHIRL-BONE DISPLACED.

In stinted colts the most trivial motion will often give rise to this accident; the creature can hardly move without its leg being thrust out behind it. The cure is, in these cases, anything which may flurry the animal. A noise, made by moving the hand quickly and rather energetically from side to side within a hat, the crack of a whip, or any sudden and loud sound, will occasion the bone to return, with apparent ease and the utmost rapidity, to its natural situation. The colt, however, may the next moment exhibit the misfortune which, in young life, can only be cured by kindly treatment and liberal sustenance.

Probably the author will best describe the nature of the affection in old animals, by narrating a case which a few years ago happened to himself.

At the request of a friend he visited one of those auction marts for the sale of horses which in London are somewhat notorious. The object of his visit being, if possible, to purchase, his attention was directed to certain animals. As usual, a glance enabled him to pass by all the

marked "lots," and he had reached the third stable, when his eye rested on a horse which seemed wrongly placed among such companions. It was lively, young, clean legged, short backed, well ribbed up—in fact, one of those rare creatures every inch of which seems made for service. The height was fifteen hands three inches; the color was a dark brown. The author tried in vain to discover if it had any "vice." It appeared perfectly quiet. He examined the feet; he could detect no unsoundness. He went to the office and ascertained the price—twenty-four guineas! It was too cheap! Such an animal would be thrown away if sold for fifty guineas. "Would they give a warranty?" "It was not their custom to give any warranty." "Had the horse megrims?" "No." "Would they grant a trial?" "It was contrary to their rules." Still the author wanted to buy; he would "deposit the cash, and if all proved right take the horse." "They never granted trials; but there stood the owner—the writer could talk to him."

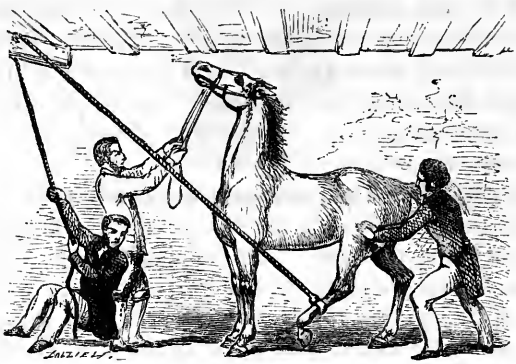
The person alluded to was lounging close to the writer's elbow, and was habited in that half-blackleg, half-blackguard costume which characterizes the low London dealer. The contemplation of this individual did not improve any previous opinion of the matter. However, the man's eye was firmly fixed upon that of his would-be customer, and, rather than encounter a disturbance, the author approached the fellow, to whom he repeated his request. The answers given were too similar to those received from the clerk for the likeness to be purely accidental. The dealer nevertheless saw a trial was imperative to convert the inquirer into a purchaser; and, rightly judging from appearance that there was little of the jocky in the writer's attainments, reluctantly consented to afford the demanded test.

The horse was speedily between the shafts of a very light gig. The man took the reins, placed the whip behind him, and we moved off at the gentlest of possible trots. No objection was taken to the pace; it gave the better opportunity of examining into the soundness. All was right in that particular. The steps were loud and even. After some time, during which the man frequently inquired if "I had had trial enough *now?*" we left the paved streets, but no entreaty could cause the pace to be improved. At length we came to a rise in the ground, and, as it was approached, my companion turned sulky. Hardly had the horse began to ascend the inequality, before it suddenly stood quite still. The gig was brought to with a jerk, which almost threw both of its occupants upon the footboard. The author was the first out of the vehicle; there stood the horse—the leg out, the foot flexed, the head erect—displaying the evident symptom of luxation of the patella.

An inn was fortunately near the spot. To the yard of the hostelry

the animal was with difficulty led. Being sheltered in an unoccupied building, a groom was placed at the horse's head. A long rope, thrown over a beam, was fastened to the fetlock of the protruded limb. By this rope the owner stood; and while he pulled the leg upward and forward, the writer was by the quarters, with both hands pushing the luxated bone inward. The patella soon slipped into its situation; and the horse was afterward sold by auction for four guineas more than the author had refused to pay for it.

Mr. Spooner, in his lectures at the Royal Veterinary College, always



THE MANNER OF RETURNING THE PATELLA OF AN ADULT ANIMAL.

recommends his hearers, after this bone has been returned, to place an assistant by the horse's side, with strict orders to hold the patella in its situation for some hours. Such advice is most excellent; to which we can only add, perfect rest, and as much strengthening food as the animal can consume. If such measures are pursued, and the horse be not used for six weeks subsequent to the accident, there need be little fear entertained of a second luxation of the patella.

BLOOD SPAVIN.

This disease is, happily, with the past: the writer has not seen an instance. Neither had the late Mr. Percival—the highest veterinary authority—after a life laboriously passed in scientific research. It is described to have existed as varicosity of the vena saphena, where the vessel crosses the hock. The cause is said to have been bog spavin when of magnitude: this, it is asserted, opposed circulation within the vessel; but the author conjectures the swelling must have assumed the callous state, before it could have offered sufficient resistance to the flow of blood to occasion the vessel to enlarge or to become varicose.

There is no cure for such a disease. The knife may remove the deformity; but a larger blemish was often left as the consequence of the operation. Should such a case be known to any of the present readers, the author would advise the enlargement should be left alone, and trust placed in the absorbing powers of nature for its removal.

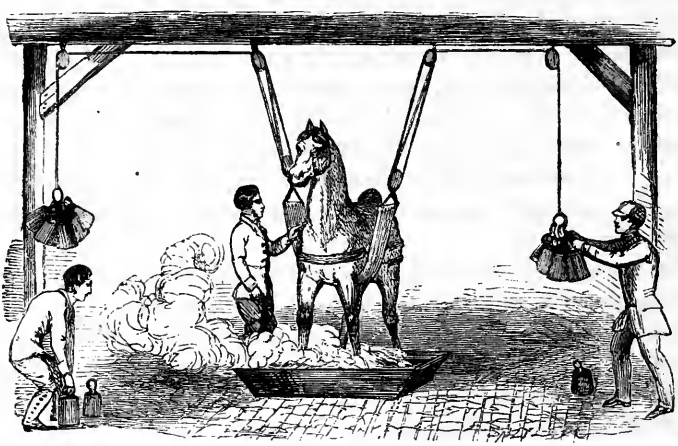
A BLOOD SPAVIN, AS IT IS REPORTED TO HAVE ONCE EXISTED.

CHAPTER XIII.

THE FEET—THEIR ACCIDENTS AND THEIR DISEASES.

LAMENESS.

Of all inventions intended to mitigate the sufferings of the horse, none, perhaps, is so generally useful as the foot-bath; certainly, not one is so decidedly beneficial in its operation. It consists merely of a wooden or iron trough, one foot deep; the shoes of the animal should, if possible, be taken off before the hoof is allowed to tread within the



A READY MEANS OF SOFTENING THE HORN, WHERE PRESSURE OF THE HOOF AGGRAVATES THE LAMENESS.

bath; or, if such a measure be not possible, then the burden of the horse's body should be counterpoised by means of weights. This precaution is always prudent, for, should the shod horse occasion fracture or breakage, an alarm might be excited which probably would ever after prevent the employment of the foot-bath with the same quadruped.

The water should always be mixed without the building; it is never well to excite an animal's fears by allowing it to witness unnecessary preparation. The author is fully aware that most people assert the horse has a very limited comprehension: so it may have; but it has an active terror, which is apt to misconstrue the simplest of motives. Whoever has seen the busy eye of the quadruped watching all that takes

place around it, and noting every triviality whenever any unusual movement gives intimation to the animal that something is about to be attempted, will readily allow the need there is for excessive caution. The horse may comprehend nothing, but it is not, therefore, the less to be propitiated. Its terror has to be soothed and its confidence has to be gained; the last is soonest won by avoiding anything which possibly might excite the first.

Always have the heat of the water ascertained by a thermometer. Sensation is only a relative test with regard to the presence or absence of warmth; were it not so, the coarse hand of a groom, nevertheless, might easily endure that degree of temperature which should pain the foot and leg of a horse. Let the fluid in the first instance stand at 70°; after the animal has entered the bath, gradually and without noise increase the temperature up to 90°.

At that standard the water ought to be maintained; the hoof should remain soaking from four to six hours at each operation; the groom, doubtless, will complain of having frequently to fetch warm water, and when not so employed, of being obliged to watch a thermometer; but the present book is not written to please the likings of any individual. To contribute to the welfare of the horse is the object of the writer; that he has not unnecessarily imposed an irksome duty upon any human being, the purpose for which the bath is introduced into the stable should be sufficient evidence.

The horse's hoof is of considerable thickness; it is far from unusual with stablemen to saturate the healthy hoof with various greasy preparations; therefore it will require some time before the heat and water can soften that which is, as it were, prepared to resist their action. The hoof should be rendered perceptibly soft when the object is to relieve a painful **lameness**; the warmth and moisture should not only saturate the covering to the foot, but should also soothe the internal structures. The pressure of the horn may thus be mitigated, and the deep-seated inflammation likewise be ameliorated.

When the bath is removed, the foot should not be left exposed to the air, as the horn then quickly dries; it soon becomes harsh and brittle. In this condition, it is likely to do more injury to the sensitive parts than good was anticipated as the consequence of its immersion. The hoof, when taken from the water, should be incased in warm and air-proof bandages—the intention being to retain the heat, while evaporation is prevented. The bandages likewise answer another purpose; they protect the foot, which, being without a shoe, and covered by horn that has been deprived of its resistant property, is therefore much exposed to accidents.

To obtain the full benefit of the bath, the foot should enter it night and morning; the animal should be subjected to its operation for at least four hours each time, and the ingenuity ought to be exerted to prevent the hoof from becoming dry in the interim. Perhaps nothing is better for this purpose than the leather case, which is lined with sponge, and which can be procured of most tradesmen who deal in veterinary instruments; it is made to fit the foot, also to envelop the pastern. The bottom portion is formed of the stoutest leather, and will afford all desirable protection; while the sponge will retain the moisture, which this material permits to be renewed, should circumstances, such as the heat of the hoof or the warmth of the weather, cause the fluid to evaporate. However, such additions must always be made with warm, cold water being unsuited for the purpose.

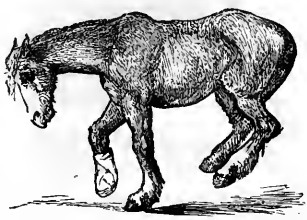
These particulars have been thus fully detailed because lameness constitutes no inconsiderable portion of equine misery, and because such ailments are more frequently encountered than special forms of disease. To judge quickly and surely of such affections proves in no small degree veterinary proficiency; in every shade of lameness, the gentleman, unless more than usually practiced in such ailments, had better be guided by an educated opinion. Where it is possible to mistake another's misery, it displays no boldness to risk chances upon our own judgment.

Lameness is simply the difference of bearing cast, during progression, upon the several legs. Pain in the joints, bones, or tendons is most severe. It is even more terrible when inflammation of such structures is confined within the horny hoof; of this torture man can know nothing —he may rest the angry limb, may recline the body, or may seek consolation in friendly converse and in mental diversion. From all the higher pleasures the horse is excluded. It cannot rest the leg; and the instinctive dread which the sick animal displays of being unable to rise again prevents the quadruped seeking that relief a change of posture might afford.

The horse always stands when seriously diseased; often the erect position is continued to the last, for the sufferer ceases to maintain it only with the relinquishment of life. During severe lameness in one foot, the animal seldom lies down; it stands and stands, often for months. How the limbs must ache! Yet the relief which the slightest motion might induce is avoided with the tenacity which pain begets when operating upon excessive timidity. Often one spot is occupied for months! During this tedious period one foot is held from the earth. The mind shrinks from conjecturing the torture which could prompt such an act; the reason retreats from contemplating the agony by which the deed can alone be occasioned; we shudder as the imagination remotely pictures

the pains by which it must be accompanied! Yet who has been much among stables, and has not witnessed many such sights?

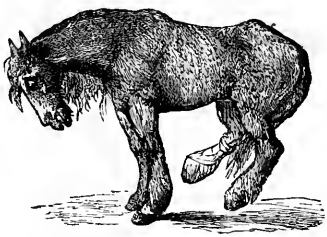
It requires small knowledge to recognize those lamenesses to which the heavy breed of horses is particularly exposed. Agony, being excessive, always obliges this species of animal to indicate the limb, or to attract the attention of the spectator toward it. These creatures, when thus affected, if compelled to move, hop onward upon three legs; the weight is never thrown upon the foot which has been severely injured.



THE MANNER IN WHICH THE HORSE PROGRESSES WHEN ONE FORE LEG IS INCAPACITATED.

Illustrating this subject is the annexed figure of a horse which has been hurt upon the off fore foot; the figure is supposed to be desirous of progressing, or to be in the act of bringing the hind limbs forward. The entire weight having for a certain space to rest upon a single support, some time is spent in accurately balancing the body before this action is hazarded. The slightest mistake would necessitate a fall, of which it has been observed the sick horse is endued with a particular dread. Therefore, after a certain time spent in preparation, the legs are, with much muscular exertion, lifted from the ground, and the sufferer hops onward.

The wretchedness of the quadruped, however, is not complete until one or both hind legs are implicated. From some hidden cause, the anguish of the animal, great as it may be, is not perfected while the lameness resides in front. The horse, suffering in a fore limb, has even laid on flesh during the period of enforced idleness. But when the posterior extremities are injured, the constitution is involved. The body wastes rapidly, and every fiber within the huge framework seems to quiver with sensibility.



THE MANNER OF ADVANCING THE HIND MEMBERS WHEN ONE POSTERIOR FOOT IS INJURED.

If the creature, thus disabled in one leg, is obliged to advance, the chief difficulty is to so place the sound limb upon the earth that the balance shall not be destroyed. There are the two fore legs to rest upon, and the head to act as a kind of counterpoise; therefore there is little impediment to raising of the trunk; but the obstacle consists in the peril to be surmounted when the sound member reaches the ground. A certain shock has then to be

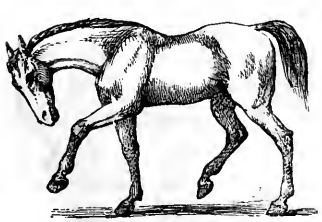
sustained, and the fear apparently is lest the slightest want of preparation should bring the body to the earth.

The next motion delineated necessitates the greatest care and the mightiest exertion. There are several signs which declare such to be the case. To advance the two sound fore legs is an effort of despair always preceded by a pause. During the time the feet are from the earth, the entire weight, unrelieved by the slightest counterpoise, must be supported by one sound limb. The muscles on that side have to raise the trunk, or to perform double labor, for the step invariably is a species of leap. The body has not only to be lifted, but the strain must be maintained to continue or rectify the balance. A pause of more than ordinary length declares the magnitude of the approaching struggle. The teeth are clinched; the head is thrown backward; a deep inspiration is inhaled; the muscles are powerfully excited; and, with a spasmodic suddenness, the feet are projected onward.

A HORSE, HAVING ONE HIND LEG RENDERED USELESS, BY A SUDDEN EFFORT ADVANCES THE FORE LIMBS.

The step accomplished, the breath is released in a kind of heavy sigh; the animal remains quiescent for a brief space, as though the greatness of the late effort had partially deprived it of consciousness. It is, however, an exceptional case for a horse of the lighter breed to be thus "hopping lame." In all animals, nevertheless, lameness is a heavy affliction; in all, the manner of progressing is characteristic of pain. Suffering, more or less intense, is declared every time the injured foot touches the ground.

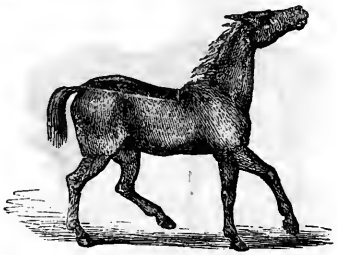
One fore foot being affected, the head and body drop, or slightly sink, whenever the sound member rests upon the earth. This peculiarity a little reflection will readily account for. Of course the desire of a lame animal is to spare the disabled foot as much as possible. The injured part scarcely touches the earth, before, with an effort which raises the head and body, it is lifted again into the air. The least possible burden is thrown upon the disabled foot. However, the weight must be cast somewhere; and by how much less one leg has to carry, so much more must the other support. Conse-



A HORSE, IN THE ACT OF TROTTING, BEARS THE WEIGHT UPON THE SOUND FORE FOOT.

quently, when the sound hoof comes to the ground, the extra burden rests upon it; the head and body perceptibly drop, and the footfall emits an emphatic sound, the accent of which is increased by the all but inaudible tread of the opposite member.

The indication, however, is in some measure reversed when the lameness is situated behind. The movements of the head no longer accompany those of the fore legs; for, although the head be not steady, it evidently is not influenced by the forward members. If, however, the motion be closely observed, it will be found to be regulated by the movements of the posterior extremities, only with a difference. When the sound hind limb rests upon the earth, the head is raised; but the sinking or elevation of the whole body is never so marked as it is in the previous case of anterior injury. The movements characteristic of posterior lameness are, however, well shown in the haunches. When the sound limb reaches the ground, the hind portion of the body obviously drops upon that side; when the painful member is caught up, that side of the haunch on which resides the disabled foot is also jerked upward.

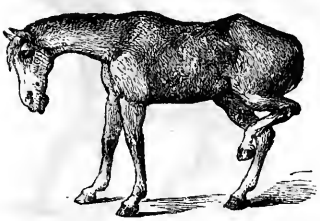


A HORSE, BEING LAME IN ONE HIND FOOT, RESTS THE WEIGHT UPON THE SOUND LIMB WHILE TROTTING.

There are other sorts of lameness to be described. A horse is sometimes returned by the smith lame all round. The gait is peculiar, because it is caused by the shoes being too small or tight. It has been likened to skating; and the author thinks the term so applicable that he has no desire to change it. There can, however, be then no difficulty in detecting the cause of the affliction. The horse was, a short time before, sent to the forge a sound animal, and it has been returned a positive cripple.

It is lamentable to remark the number of horses which are driven through the streets of London in a disabled condition. People appear to be without feelings or recognitions when the sufferings of horse-flesh are before them. An animal with scarcely a sound limb, or else "hopping lame," may frequently be seen, in broad daylight, attached to some gentleman's carriage or tradesman's cart, to a hired vehicle or a costermonger's "all sorts." From the highest to the lowest, all are equally disgraced; the toil of a life seems incapable of purchasing a day's commiseration. A little forbearance might be a profitable investment in these cases; but no person seems able to keep a horse and to allow the animal a day of rest. So long as it can crawl, so long must patience work!

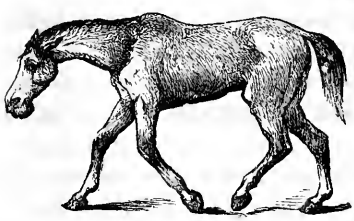
Other forms of suffering than those confined to the feet affect the progression of the horse; the "whirl-bone" or hip-joint is sometimes visited by ulceration. The symptoms then in a degree resemble those exhibited when occult spavin is present; the affected limb is, however, after touching the earth, caught up more sharply when the hip is diseased. The hoof, moreover, is presented more fully during motion in the last-mentioned affection. The best method, however, to ascertain the existence of the ulceration, is to hold some soft substance over the joint, then to strike it with a mallet; the shock will be communicated to the seat of lameness, and elicit an energetic response.



ACUTE LAMENESS CAUSED BY ULCERATION WITHIN THE HIP-JOINT.

Nothing can be done for such a condition; certain barbarities are proposed as experiments by continental veterinarians; but man obviously has no right to run chances with cruelty practiced upon breathing life. Hip-joint disease is decidedly incurable, and renders every step a separate agony.

The shoulder is a very favorite seat of injury with those who pretend to a knowledge of equine ailments; with such simple folk, if a horse be lame behind, the cause is always traced to the whirl-bone; should an animal have partially lost the use of an anterior limb, the injury is invariably found in the shoulder. The proof of their correctness is always exhibited in the lessened bulk of the parts referred to; but throw a limb out of use, as lameness in the horse always does, and the absorption of the whole extremity, from want of exercise, naturally ensues.

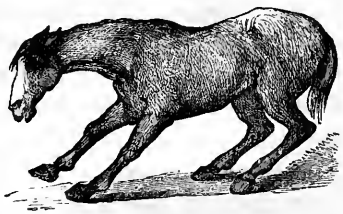


DRAGGING THE LIMB, THE INDICATION OF SHOULDER LAMENESS.

The shoulder-joint is occasionally ulcerated; but more often disease is found upon the tendon of the flexor brachii, a muscle which, arising from the shoulder-joint, is of service in flexing the radius. In both cases the seeming length of the arm is remarkable; so also is the fixedness of the shoulder, and the obstinate refusal to advance or to flex the arm. The consequence is, that a horse with disease of the shoulder drags the limb, and never lifts the toe from the ground.

Ulceration is sometimes, though rarely, witnessed within the elbow-joint; a case of this description is recorded by the late W. Percival.

The chief symptom indicated subacute laminitis; the affection appeared gradually, and, without intermission, proceeded from simple bad to the very worst. The foot was, however, neither hot nor tender; by this sign the affection was distinguished from every form of fever in the feet, although the animal endeavored to bear only upon the heels of the fore extremities, and brought the hind legs as far under the body as was possible.



THE MANNER IN WHICH A HORSE HAVING ULCERATION OF THE ELBOW-JOINT ENDEAVORS TO PROGRESS.

Disease of the knee-joint is far from unusual. Mr. Cherry first directed attention to this fact; for, although dissection had frequently exhibited the carpal bones united, no one prior to Mr. Cherry drew any inference from the obvious indication.

Mr. Cherry describes the symptoms of the affection to be a stiffened protrusion of the fore leg, a long step, and an entire want of flexion in the diseased limb.

The author is unable to corroborate the above observations, possibly from his attention only having been directed to a few cases, and those not of a very acute character. The writer has, however, remarked, in certain instances, a perpetual knuckling over, without deposit in the knee or contraction in the tendons being present to account for the assumption of so uncomfortable an attitude. A want of power to bend the leg was noted in a few animals. Such horses either placed the limb outside the body when they lay down, or rested upon their sides; and lameness, though always present, was never witnessed in an aggravated shape.

No human lamentation could embody the deep sorrow which the crip-

THE HEALTHY LEG WHEN THE HORSE IS LYING DOWN.

THE NEAREST APPROACH MADE BY THE HEEL TO THE ELBOW IN CERTAIN CONDITIONS OF THE KNEE-JOINT.

pled condition of one leg occasions to the horse. The creature thereby is left a clog upon the earth. Its existence is deprived of the power which alone made it pleasant. Progression is laborious, and even rest is painful. The quadruped, thus disabled, stands motionless on one

spot; the head is lowered; the eyes are dejected; the breathing is fitful; and the entire frame is apparently resigned to a huge sense of degradation. All the pride of life is lost. Every trace of animation has fled. The animal evidently is, in its own conviction, useless and disgraced. A horse in such a state is, indeed, a melancholy spectacle; and the feelings of that man who, understanding the image, can contemplate it unmoved are not to be envied. Still, for how many years has such a sight been before the eyes of mankind, without any individual possessing the heart to interpret it!

Surely in all life there exists no other creature so willing to obey—so happy in its labor, and so entirely obedient under command—which is equally subjected to abuse! All the horse demands, in requital for its manifold services, is food and shelter: kindness it does not insist upon, and even bad usage it submits to. For permission to live, it mildly pleads; and in return for the liberality which merely supports the strength, it contentedly resigns its body and relinquishes its intelligence. Yet the natural wants are often stinted, although the toil is always bitterly exacted. Surely in all life there exists no other creature equally subjected to abuse!

The patience of the reader is solicited, while the author notices a circumstance connected with the present subject, which has repeatedly come under his observation. Nothing can so entirely subdue the spirit of a horse as an acute lameness: the suffering must be intense. To a distant conception of the agony endured man cannot excite his imagination. Still, all of the effect upon the quadruped is not to be attributed to that cause. Other diseases are painful, but by them the constitution is affected. Lameness, generally, is a local affliction—it is not a general involvement; it leaves the constitution healthy. Yet a high-mettled, or even a savage animal, is often quieted as by a charm when the foot is disabled. The intractable of the species has, by a sudden visitation of this nature, been rendered passive. The existence seems then to be given up to misery, and the horse becomes disregardful of whoever approaches it. On such a sufferer expend but a little time striving to convince it of your intent. It is astonishing how quick affliction is to comprehend humanity; and the painful foot is given up to man's desires—nay, sometimes it is even advanced for his inspection.

The writer has applied to the crippled feet of horses certain remedies which must have augmented what previously appeared to be the extreme of anguish. The author has been painfully conscious of the agony attendant on the operation; but to his surprise the animals have not flinched, neither have the feet been withdrawn. The quadruped appeared to suffer torture with the patience of stoicism, influenced by the aban-

donment of utter confidence. The most caustic dressings have been freely employed upon the most sensitive part; yet the creature which, when in health, seemed made up of the acutest sensibilities, has submitted to the torture with more than mortal fortitude. Once win the reliance of timidity, and so beautiful, so entire, so self-nugatory is its confidence.

Little can be said concerning the cure of lameness. The causes are various, and, of course, the remedies are as numerous as the provocatives. One thing may, however, be advised: have the shoe taken off and the foot searched. Never mind the horn being pared away—many a horse limps upon a whole hoof; and it is astonishing upon how small a portion of horn an animal may go sound. The seat of the injury being ascertained, and so much of the inorganic covering removed as may be necessary to afford some relief, always soak the foot in the bath before permitting the final use of the knife. The water cleanses the part, favors the discharge of pus, lowers the inflammatory action, softens the anguish, and destroys the harsh character of the dry horn. This last substance, as was observed, by the united action of warmth and moisture loses its resistant property. It cuts easily when newly released from the bath; and if the knife be sharp, it may be excised without any of that dragging sensation which frequently provokes the animal to snatch away the member while it is being operated upon.

PUMICE FOOT.

Pumice foot is a deformity produced by hard work; it does certainly appear strange, when we regard the beauty and strength united in the frame of the horse, that man's barbarity should exceed Nature's ingenuity. A more captivating present—heightening human pleasures, lessening human toil—than the horse, it is impossible to imagine; but its beauty seems only given for man to deface. A stronger helpmate, when speed is considered, it appeared beyond the most excited imagination to fancy. But the cruelty of the master found it easy to incapacitate the power so exquisitely endowed. The speed was too slow for the eagerness of the rider; the docility was not apt enough for the impatience of the possessor; in every particular the servant seems to have been at fault; and now we hear men gravely lamenting the invention of railroads, because these will interfere with the breeding of horses. Let us hope the establishment of railroads may supply a deficiency which the willingness of flesh and blood was unable to gratify.

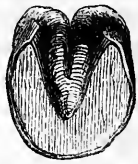
Animals bred on a marshy land, and of a loose habit of body, are apt to have weak feet, a specimen of which is given on next page, though

not of one belonging to the heavy cart-horse. All the delineations inserted in this book are necessarily extreme cases; it is easy for the imagination to soften the evil when the mind is impressed with characteristics of the thing which is depicted; but not always so free from difficulty for an untutored imagination to magnify a reduced portrait.

A weak foot has a long, slanting pastern; the hoof is marked by rings, showing the irregularity of the horny secretion, and the crust is broken in those places where nails have been driven to fasten on the shoe, proving the brittle nature of the hoof.

Such are the outward signs of a weak hoof; but if the person behold-

A WEAK FOOT.



THE SOLE OF A WEAK FOOT.

ing that sort of foot be in any doubt, let him lift it from the ground and inspect the sole. That part will also present peculiarities which can hardly fail to attract attention.

The sole of a weak foot has a thin and irregular margin of crust; a flat surface; well-developed bars, and a healthy frog. Creatures with this kind of hoof, when brought to work upon hard roads or London stones, are apt to throw the foot down with heedless force at every step, and thereby soon to bruise the sole. These horses generally have high action, and this circumstance lends additional force to the blow; the injury reaches the coffin-bone, which begins to enlarge, and ultimately forces the horny sole outward. A pumice foot has the appearance of the member represented on the next page, though the reader must not anticipate the illustration will accurately indicate every stage of the disorder.

Feet of the above description generally have very weak and brittle crusts; but the frog almost invariably is large and prominent; there is no kind of foot which so generally exhibits a healthy frog, and the next page shows an engraving of the ground surface of a pumice foot, in illustration of the fact.

There are many methods proposed for amending a pumiced foot. One is the removal of the shoe; then allowing the deformed foot to stand a certain portion of time upon flat flag-stones. But as stamping the foot upon stones produced pumice foot, prolonged stress thereon

does not seem calculated to remove the deformity. A pumice foot is not a lump of pudding, to be flattened by simple pressure. In the horse's hoof there is bone and flesh to operate upon. Even supposing the standing upon flag-stones was beneficial, what immediate result could be anticipated from a medicine which was to be administered once in three weeks, and for half an hour only at each application?

THE SIDE VIEW OF A PUMICED FOOT.
Showing the swollen or rounded state of the sole, with the brittle and uneven condition of the crust.

THE SOLE OF A PUMICED FOOT.
Displaying a ragged wall, and exhibiting a very healthy frog and a bulging sole.

Another artifice is to draw a hot iron over the sole at every shoeing. The intention is to stimulate the horn and thus render the sole of greater thickness. But that which may affect the secreting membrane of the foot may also stimulate the bone to which that membrane is attached. Thus the intended remedy may turn out to be a positive aggravation.

A PUMICED FOOT DIVIDED.
Showing the altered state of the internal structures.

A DISH SHOE.
Employed in cases of severe pumice foot.

There are also other methods of intended relief, but all are equally useless.

The only means of real benefit lies in the treatment of the hoof and in the mode of shoeing. For the last, select what is denominated a "dish" shoe; that is, a bar shoe, having the web hollowed out like to the sides of a pie-dish. The only part of this shoe which touches the ground is the rim of the inner circle.

This kind of shoe will protect the bulging sole, and if shod with leather, the protection will be greater, though the shoe will, in that case, be more difficult to retain. The flat surface at the posterior part of the shoe presents a point for the bearing of the frog, which can

afford almost any amount of pressure. The many nail holes made around the shoe denote the difficulty the smith encounters when fixing a protection of this sort upon the pumiced hoof. The crust of the foot is always brittle, and the weight of iron employed being greater than usual requires an extra number of nails to fasten it securely. The smith consequently, in such cases, has no choice. He must drive a nail wherever he can find the horn which will sustain one.

With regard to the horn, keep that continually dressed with equal parts of animal glycerin and tar. Moisten the hoof with this mixture twice a day. No improvement may be remarked in a week; but in two or three months the crust will have become perceptibly less brittle, and the labor of the smith will be rendered far less perplexing. For the abnormal condition of the foot—that is permanent and nothing can be done beyond employing such artifices as are calculated to relieve the affliction.

SANDCRACK.

Any cause which weakens the body of the horse by interfering with the health of its secretions may induce **sandcrack.** Treading for any length of time upon ground from which all moisture is absent, by rendering the horn hard or dry, may cause the hoof to be brittle and give rise to sandcrack. However, this last provocative seldom operates in this country; when sandcrack occurs in an English horse, it is generally generated by debility, which leads to the secretion of faulty horn. So far, however, is this from being the prevailing opinion, and so little sympathy does the horse receive in its diseases, that the endeavor, indeed the custom, of all veterinary surgeons is to continue at work the horse having a division running completely through the hoof.

Sandcracks are of two sorts. Quarter crack, which chiefly happens among the lighter breed of animals; toe crack, which occurs principally with cart-horses, and mostly with those which work between the shafts.

Quarter sandcrack is of the least importance of the two. It is oftenest seen upon the inner quarter of the hoof, where the horn, being thinnest, is most subjected to motion. Usually it commences at the coronet, extending to the sole, and also to the sensitive laminæ.

A horse thus affected should be thrown up; should be placed in a large, loose box, and receive soft, nutritious food, such as boiled oats, boiled linseed, and scalded hay. A little green-meat occasionally should be allowed to regulate the bowels; greased swabs should be placed over the hoof and under the sole. A bar shoe should be worn upon the affected

foot. This treatment should be continued till the horse has recovered from its debility.

With regard to the crack itself, take a fine knife and gradually scrape off the sharp edges till the division assumes the appearance of a groove. If the crack does not reach through to the flesh, no fear need be entertained concerning the lower edges of the crack, because the horn secreted by the laminæ is of a soft nature, and will most readily yield. Besides, paring the outer horn often prevents the inner layer being cracked by the motion of the foot; this being done, should the division not descend the entire length of the hoof, or reach from the ground to the coronet, with a firing-iron, heated to redness, draw a line at each extremity of the fissure. The line need not be made so deep as will occasion pain; it is only necessary that the mark should go through the hard outer crust of the foot to prevent extension of the division.

QUARTER SANDCRACK.

Generally met with, in fast horses, upon the inner side of the fore foot.

Should the separation be the whole way down the hoof, it is as well to adopt either the plan followed by the late Mr. Read, or the mode pursued by Mr. Woodger, the clever practical veterinarian, well known in Paddington. Mr. Read used to make a semicircular line near the coronet with the hot iron: Mr. Woodger has for years been accustomed to draw lines from the coronet to the crack in the shape of a V, with the same instrument. Both methods have a like intention, namely, to cut off the coronet from the inferior portion of the hoof, thereby preventing the movements of the foot from operating upon the newly secreted horn. However, Mr. Woodger's plan being the easiest, and quite as effective as that of the late Mr. Read, is certainly the best.

A PARTIAL QUARTER SANDCRACK DRESSED AND SHOD.

THE METHODS OF ERADICATING A SANDCRACK: EITHER THE SEMICIRCULAR OR THE ANGULAR LINES ARE EQUALLY EFFECTIVE.

Sandcrack, when it occurs at the toe, usually extends the entire length of the foot, and leaves a portion of bleeding flesh exposed. The laminæ, being opened to the stimulating effects of the air, are very apt to throw out a crop of luxuriant granulations. These, of course, are pinched between the two sides of the division. They bleed freely; often, from

the pressure, they turn black, and then smell abominably. The putrid action, having once commenced, is apt to extend, and portions of the coffin-bone are likely to exfoliate.

A FOOT WITH TOE SANDCRACK.

Illustrating the mode of shoeing with clips, and of easing off at the toe; also exemplifying the manner of paring down the hoof, and showing the part where granulations are likely to appear.

Now to prevent this, so soon as the horse is brought in with a sandcrack, wash the part thoroughly with the chloride of zinc lotion, one grain to the ounce of water. The bleeding having ceased, pare down the outward edges of the separation, and put on a bar shoe, eased off at the toe, and with a clip on either side of the division. If the injury has not extended the length of the hoof, you must make a line at each extremity with a heated iron, as in quarter crack, than which it is also of more consequence that the coronet should be isolated; because the external horn being thickest at the toe, is the more likely by its movements to be influential upon the new and plastic horn of the coronet.

Should, however, the granulations have appeared, and the horse, with appetite lost and the head dejected, the pulse thumping and the injured foot held in the air, appear the picture of a living misery, first cleanse the wound thoroughly with the chloride of zinc lotion. Then apply a firing-iron, of a black heat, to the hoof, near to the crack. The intention, in doing this, is to warm and thus to soften the horn. This effect being accomplished, pare down or scoop off the edges—using the heated iron again, if necessary. Do all this leisurely, and with every consideration for the animal, which endures intense agony; for anything like violence or impatience tells fearfully upon the sufferer's system.

The horn being lowered, take a very sharp drawing-knife, and, with one movement of the wrist, excise the granulation. Set down the foot, and leave it to bleed; the loss of blood will lower the inflammation and will benefit the internal parts. Give a little green-meat to cool the system and act upon the bowels. Then, with the constant use of the lotion, enough has been done for one day.

The following morning you may again apply the lotion, and continue to use it afterward thrice daily. Any further lowering may also be accomplished to the edges of the crack, as well as the coronal portion of the horn be separated from the lower part of the hoof, by means of lines drawn as before illustrated.

If the horse must go to work, remember, it should not be in the shafts, upon long journeys, or with a heavy load behind it. Before the animal

quits the stable, lay a piece of tow saturated with the lotion within the crack, and bind that in with a wax-end; tie a strip of cloth over all; give this bandage a coating of tar; and, when the horse returns, be sure to inspect the part. Should any grit have penetrated, wash it out with the lotion, and do not begrudge a minute or two to remove that which, if allowed to remain, may cause the animal much additional anguish. Then give the suffering creature a nice, deep bed, some scalded hay, and a mash made of bruised oats, into which has been thrown a handful each of linseed and of crushed beans; moisten these last constituents with the water drawn from the scalded hay, and, if the horse should not appear hungry, throw among the hay half a handful of common salt.

A HORSE'S FOOT DRESSED FOR TOE SANDCRACK.

Showing the way in which it should be bound up when work is imperative.

The poor man may have some excuse for working an animal with sandcrack; such a person cannot afford to keep the horse in idleness for the months which the cure will occupy. But the worst cases of this kind the author ever beheld have always been in quadrupeds belonging to wealthy tradesmen, who had ample means to gratify their desires, but wanted the heart to feel for mute affliction.

FALSE QUARTER.

False quarter is the partial absence of the outer and harder portion of the hoof; the consequence is, that the sensitive laminæ, in the seat of the false quarter, are only protected by their own soft or spongy horn. This is frequently insufficient to save the foot from severe accident; it is apt to crack, being strained by the motion of the hoof. The fleshy parts are then exposed; bleeding ensues, and fungoid granulations sometimes spring up; these are often pinched by the two sides of the divided horn, between which they protrude. When such occurs, the treatment should be the same as that recommended for sandcrack.

FALSE QUARTER, OR A DEFICIENCY OF THE OUTER WALL.

THE ONLY POSSIBLE RELIEF FOR FALSE QUARTER.

No art can cure a false quarter; a portion of the coronary substance has been lost, and no medicine can restore it. All that can be done is

to mitigate the suffering; a bar shoe with a clip at the toe may be used, the bearing being taken off at the seat of false quarter. The portion of crust near to the weakened part should be beveled off, so as to join the soft horn with an insensible edge. Some persons recommend a mixture of pitch, tar, and rosin to be poured over the exposed quarter; the author has not found this compound to answer; it peels and breaks off upon the horse being put in motion. A piece of gutta-percha, of proportionate thickness, fastened over the place, has sometimes remained on for a week, and answered to admiration.

SEEDY TOE.

It appears not to have occurred to writers upon veterinary subjects that the horse, which breathes but to work—for the instant its ability to toil ceases the knacker becomes its possessor—that an animal which exists under so severe a law, should occasionally be "used up;" that a creature which is sold from master to master, all of whom become purchasers with a view only to "the work" each can get out of the "thews and muscles," should occasionally be debilitated to that stage which might interfere with the healthiness of its secretions, is a notion that seems to have been beyond the reach of those writers who have hitherto composed books upon the equine race. A separation between the union of the two layers of horn which compose the crust has been long known; it has been much thought about, and the fancy has been somewhat racked to account for its origin. Still, although the human physician has recorded the brittle state and abnormal condition of man's nails in peculiar stages of disease, no one seems thence to have argued that a certain condition of body might possibly affect the hoofs of our stabled servant.

SECTION OF A HORSE'S FOOT AFFECTED WITH SEEDY TOE.

The method of cure which the author adopted, led thereto by the admirable lectures of Mr. Spooner, and the success it met, soon made apparent the fact of its origin; but, before describing this, it may be as well to inform the reader in what consists a seedy state of the horse's toe.

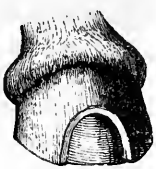
The wall of the foot is composed of two layers—the outer one, the hardest, the darkest, and the thinnest, is secreted by the coronet; the inner layer, the softest, thickest, and most light in color, is derived from the sensitive laminæ. These different kinds of horn, in a healthy state, unite one with the other, so that the two apparently form one substance. The junction makes a thick, elastic, and strong body, whereto an iron

shoe can be safely nailed, and whereon the enormous bulk of the horse's frame may with safety rest.

But when overwork affects the natural functions of the body, the two kinds of horn do not unite; their division invariably begins at the toe, as it always commences in the nail of the human being at the outer margin. If the seedy toe be tapped or gently struck, it emits a hollow sound; and if the shoe be removed, there will be found a vacant space between the two layers of horn; into this space a nail, a piece of broom, or a straw is commonly pushed, to ascertain the depth of the lesion.

THE APPEARANCE PRESENTED BY SEEDY TOE WHEN THE SHOE IS REMOVED, AND THE GROUND SURFACE OF THE WALL IS INSPECTED.

Mr. Spooner advised that the whole of the detached horn should be cut away. The writer, however, insists that the horse should be thrown up—not turned out to grass, but placed in an airy, loose box, and liberally fed, or otherwise so treated as its condition may require. Once every fortnight, for two months, the smith should inspect the foot, and should cut away so much of the outer wall as may still be disunited. It commonly takes three or four months for the hoof to grow down or to become perfect; and rest, with liberal feeding, during this time, is sufficient to renovate an exhausted frame. A new and sound covering for the hoof of the invigorated horse is secreted by the expiration of the period named; nor has it reached the knowledge of the writer that any animal, after such a mode of treatment, has been liable to a second attack.



THE APPEARANCE OF THE HOOF AFTER THE SEEDY TOE HAS BEEN REMOVED WITH THE KNIFE.

The ordinary method of cure is to cut away the hoof; then, having nailed a shoe on, to send the disfigured horse to resume labor. Under this form of treatment, the seedy division, once confined to the toe, has extended to the quarters; the structure of the hoof being destroyed, the horn was unfitted for its purposes. The weight of the body forced the sensitive laminæ from the coronary secretion, and the foot, after long treatment, became a deformity. The author has never beheld so lamentable a termination; but it is described by writers upon seedy toe with a complacency which seems to regard so grievous a result as the natural consequence of an intractable disorder.

TREAD AND OVERREACH.

Tread is a very rare occurrence with light horses; the author has met with but one instance. Then, from the horse being a good stepper, and from the accident happening toward the end of a long journey, as well as from certain indications of the wound itself, it was conjectured to have occurred in the manner depicted below.

TREAD IN LIGHT HORSES.
The hind foot, from fatigue, not being removed soon enough, is wounded by the heel of the fore shoe being placed upon its coronet.

TREAD UPON THE HIND FOOT OF CART-HORSES.
The animal become unsteady from exhaustion; the feet cross, and a wound results.

However, among cart-horses such a form of injury is more frequent; these poor animals have to drag heavy loads, at a slow pace, it is true, but to long distances; they are generally badly fed. Farmers' horses, especially during the spring and summer months, being supported upon green-meat, the watery nourishment impoverishes the blood, and the exhausting labor undermines the system. Often the load has to be taken down hill, toward the end of a tedious journey; the whole burden then rests upon the shafts, and the wretched horse which is between them rocks under the weight like a drunken man. The legs cross, till at last the calkin belonging to the shoe of one hind foot tears away a large lump of the opposite coronet. A piece of flesh is commonly left upon the ground; the hemorrhage is extreme, and the wagon is brought to a stand.

The worst case of the kind the writer ever saw occurred after the preceding fashion; and the carter—who, by-the-by, was proprietor of the sufferer—left the poor horse in a forge, giving orders that the smith was to do what he could, or to have it killed, as he pleased. The smith consulted the writer, and he treated the wound after the method recommended for open joint, or by bathing it thrice daily with the solution of chloride of zinc, one grain to the ounce of water. In a week a large slough took place; this opened the coffin-joint, and left a portion of the extensor pedis tendon hanging from the orifice. The treatment was continued; the lameness, which at first was excessive, gradually grew

less; the piece of tendon sloughed out, and the wound began to heal. It had closed when the animal was fetched away by the owner; but the writer was unable afterward to learn whether false quarter ensued upon the injury. This, from the extent of the wound, the writer would conjecture to have been probable; indeed, false quarter and quittor are the general consequences of severe tread.

Overreach is confined to fast horses; it happens to those which are good steppers. When tired, the feet are apt to be moved irregularly; thus, one foot is often in its place before the other has been lifted; the result is, that the inner part of the hind foot strikes the outer side of the fore coronet. A wound, and frequently a severe one, is the consequence. False quarter or quittor is likely to ensue; the treatment must be the same as was before described. No poultices are required; these only add to the weight of the injured limb, and augment the distress of the animal. No harsh measures should be allowed; the horse has enough to bear; a slough has to take place. This is a severe tax upon the strength; all the good food and prepared water the animal can consume will not now be thrown away; the treatment is materially shortened by the nourishment being sustaining of its kind, and liberal in quantity; but the injury should be treated only with the knife, and the chloride of zinc lotion described in the course of this article.

OVERREACH OCCURRING DURING THE EXHAUSTION OF LIGHT HORSES.

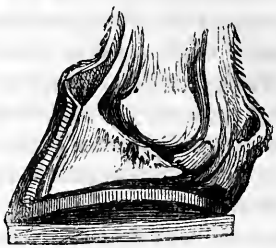
CORNS.

Corns are of four kinds—the old, the new, the sappy, and the suppurating; all are caused by bruises to the sensitive sole. The shoe is the passive agent in their production, when they occur in large, fleshy feet; the thick, unyielding, horny sole is the passive agent, when they are present in contracted feet. The coffin-bone, in both cases, is the active agent; the wings, or posterior portions of this bone, project backward nearly as far as the bars, or immediately over the seat of corn. When the horse is in motion, the coffin-bone can never remain still; it rises, or rather the wings are drawn upward by the flexor tendon, every time the foot is lifted from the earth, and sinks, because of the weight cast upon it, every time the foot touches the ground. The wings of the bone, thus in constant action, when the horny sole is weak, often descend upon the fleshy sole, and bruise that substance upon the iron shoe; what is called a corn is the consequence. In contracted feet, where the sole is high, thick, and resistant, the horny sole does not descend, even when the immense weight of the horse's body rests upon it. It remains firm and

fixed during every action of the animal—not so, however, the coffin-bone, which is in continuous motion. The result, of course, is, the imposed burden forces the wings of the coffin-bone downward. The horny sole

DIAGRAM

Showing the position of the hindermost part of the coffin-bone when in a passive state; also portraying the shoe in the fleshy or flat foot.



DIAGRAM

Illustrating the relative positions of the wings of the coffin-bone, and the thick, concave, horny sole of the contracted foot when not in motion.

will not yield, and the fleshy sole is therefore bruised between the wings of the coffin-bone and the horn bottom of the hoof; a corn is thereby established.

Corns in a horse do not answer to those excrescences found upon the feet of man; being bruises, they consist of effusion in every instance. The effusion may either be of blood or of serum; blood constitutes the old and the new corn, serum gives rise to the sappy corn. The suppurative corn is an after-consequence of either of those just named; when the effusion has been so large as to defy absorption, a new action is started up—pus is secreted, and a suppurative corn is then created.

An old corn is the least serious, especially when it is easily cut away; it appears as a black mark upon the surface of the horny sole, and is little thought of when it can be speedily removed by the knife, because this shows the horse had a corn, but at present is free from such an annoyance. When, however, a superficial corn cannot be scooped out

THE SITUATION AND ASPECT OF AN OLD CORN UPON A LARGE, FLAT FOOT.

THE DEEPLY-SEATED AND SMALL, SCARLET SPOT WHICH DECLARES THE PRESENCE OF A NEW CORN.

with the drawing-knife, but becomes brighter and brighter as more and more horn is cut away, till it assumes the scarlet aspect of a new corn,

the matter is rather grave, because it denotes the horse to have had, and not to have been free from, corns during the growth of the present sole.

The new corn, as has been just intimated, consists of a portion of blood effused into the pores of the horn, and is of a bright-scarlet color. The size is of some consequence, as it best intimates the extent of the injury; if the stain be small and deep seated, it is of least moment.

The sappy corn is the consequence of a more gentle bruise, when serum and lymph only are effused—the horn being thereby merely rendered moist, not discolored. This species of corn is not very common, and by proper shoeing is readily removed.

The suppurating corn is the worst of all; it engenders heat in the foot, and causes excessive lameness; it creates all that anguish, a shadowy taste of which the human being endures when pus is confined beneath the substance of the finger-nail. The foot cannot be put to the ground; the arteries of the pastern throb forcibly; the countenance is dejected; and every symptom of acute suffering in a large body is exhibited.

Corns, which in man are found on the lower members, in the horse are generally witnessed only upon the fore feet. The writer has rarely seen an instance of their presence behind; but in whichever foot they appear, they must be the production of an instant, though, probably, the suppurative may be an exception; yet from these always being suddenly observed, even this species are said to be of instantaneous origin. A horse, when progressing, makes a false step; a sanguineous or sappy corn is by that faulty action established. The same horse may trot home perfectly sound, and be put into the stable for the night a healthy animal; but on the following morning it may be discovered standing on three legs. Pus may, in the interval, have been secreted, and the corn may have assumed the suppurative character.

The manner to examine for corn is, in the first place, to mark the age of the horse; then observe if, in the trot, either leg is favored. The animal being young, splint is the common cause of uneven action; if old, corns are more generally expected; the horse is brought to a stand and the smith sent for. The man raises the fore foot, and, taking a portion of crust and sole between the teeth of the pincers, gradually increases the pressure; he thus proceeds till he has by successive trials squeezed the sole all round. If the leg, while undergoing the operation, be withdrawn near either of the nails, the ideas take a different direction to that of corn; but if the foot

THE SOLE OF THE HORSE'S FOOT BEING TESTED FOR CORNS.

be held steady, the seat of corn is lastly squeezed. Should no flinching be witnessed, the examination is not esteemed satisfactory until the smith has, with a small drawing-knife, denominated a searcher, cut away a portion of the sole at the seat of corn.

The sensibility will be extreme should suppurating corn be present; in that case the sole must be gradually removed until the pus is released. That being done, the shoe should be taken off and the foot put into a bran poultice. By this means the horn will be rendered more soft and the wound cleansed. The smith, on the following day, must again cut the foot, every portion of detached horn being very carefully excised.

The horn is itself a secretion, and, in a healthy state, is intimately united with the source of its origin. When, however, pus is effused, this always lies between the secreting membrane and the horn, which has been already secreted. The horn so displaced by the presence of a foreign substance is called under-run or detached; and all horn, so under-run or detached, must be removed. When this operation is properly performed, all signs of lameness will have generally disappeared. It is usual, however, to tack the old shoe on again; and having dressed the injury with chloride of zinc and water—one grain to the ounce—there remains only to examine the foot from time to time till new horn covers the surface; merely taking precaution for the present to shield the wound with a little tow, fastened in its place by a couple of cross splints.

When sanguineous or sappy corns are found, the method is, firstly to thin the sole, so as to render it pliable, especially over the seat of corn. Should a sappy corn have rendered the horn moist for any space, or should the discoloration caused by sanguineous corn be of any size, it is as well always to open the center of the part indicated: no matter should the cut release only a small quantity of serum or a little blood. Take away a small portion of horn; pare the sole till it yield to the pressure of the thumb. When such a proceeding is necessary, the bars may be entirely removed, and the wounds should be covered with some tar spread upon a pledget of fine tow. As soon as the orifice is protected by new horn, the horse may be shod with a leathern sole and returned to its proprietor.

Such a course would occupy little time—a week at most. Yet the great majority of horse proprietors appear to have "flinty hearts," as nearly all of them begrudge the necessary day of rest to the maimed animal which has been injured in their employment. The cry, where the horse is concerned, is "toil, toil!" The veterinary surgeon is often asked "if *absolute* rest is imperative." He is frequently solicited to patch up the poor animal, so that it may do a *little* work. As day after

day passes onward, the tone becomes more and more authoritative. The horse is at last too often demanded from the hospital, and taken to resume ordinary labor before the injury is effaced. Should no evil effect ensue on such a culpable want of caution, the proprietor is apt to chuckle over his daring with another's sufferings, and to blame the science which would not incur risk, even to propitiate an employer.

Corn is not generally reckoned unsoundness. If a horse be lame from corn, the lameness renders the horse unsound; but the corn does not. Such is the beauty of horse logic when pronounced in a court of justice! A corn may suppurate, or may provoke lameness at any moment. Still the corn, in the bleared eye of the law, is no sufficient objection to the purchase of a horse. The suppurated corn may lead to quittor—still, corn is not legal unsoundness. It is a pity such is the case, since it leads men to neglect that which is removable. When the sole is high, the shoe should always be accompanied by a leathern sole. Liquid stopping should be poured into the open space at the back of the foot; and at every time of shoeing, the smith should pare the sole quite thin, even until drops of blood bedew the surface of the horn. When corns appear in flat or fleshy feet, as shoeing time comes round, only have the very ragged portions of the frog taken away. Have the web of the shoe narrowed so as to remove all chance of pressure against the iron. Lower the heels of the shoe, or try a bar shoe with the bearing taken off over the seat of corn; should that not answer, next put on a three-quarter shoe: many horses, however, will go sound in tips, that cannot endure any other sort of protection to the foot. By resort to one or the other of these measures, that injury, which in the learned eye of the law is of no consequence, but which, nevertheless, may lead to terrible lameness, or even lay the foundation for a quittor, may be greatly mitigated.

THE POSTERIOR OF A HORSE'S FOOT SHOD WITH LEATHER.

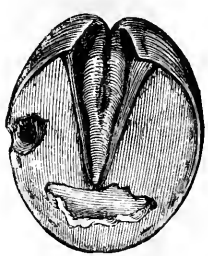
The central angular mark indicates the place into which the liquid stopping should be poured.

Bruise of the sole is an accident leading to effusion of blood—so far it resembles corn; but it is dissimilar in not occurring on a part subject to the same degree of motion, and, therefore, is not so severe in the consequences to which it leads. It is caused by treading on a stone, and is removed by paring off the horn which has been discolored or lies immediately beneath the injury. It seldom leads to great lameness or gives rise to serious results. It is treated after the manner directed for corn; but it is always advisable to shoe once, with leather, the horse which has suffered from bruise of the sole. The difference between

corn and bruise of the sole is simply this: the first is an injury produced by a cause which is always within the control of the proprietor, and which, if neglected, is likely to lead to the most disastrous maladies; the last is purely an accident, to which any horse at any time is liable, and with ordinary care is not likely to give rise to any serious consequences.

Prick of the foot is an injury incurred while the horse is being shod. There are two sorts of this accident: one, when the nail penetrates the fleshy substance of the sensitive laminæ and draws blood; the other is when a nail is driven too fine, or among the soft horn which lines the interior of the hoof, and consequently lies near to the sensitive laminæ. The first is of the more immediate importance; but the last may be equally serious in its effect. As the horse works, the strain upon the shoe bends the nail fixed into soft horn. It thus is made to press upon the sensitive laminæ, and may provoke suppuration.

To detect whether the smith is at fault, the foot should be first squeezed between the pincers as for common corn; then have the nails withdrawn one by one, and mark each as it is removed. If one appears moist or wet, have the hole of that nail freely opened. Let the shoe be replaced, leaving that nail out. Put a little tow, covered with tar, over the wound, and shoe with leather. If, however, lameness should still be present, the shoe must again be taken off and the injury treated as recommended for suppurating corn.



PRICK OF THE FOOT AND BRUISE OF THE SOLE.

The smaller opening represents prick of the foot: the larger space indicates bruise of the sole. The extent to which the horn may be removed, in the generality of cases, is also indicated.

Blame the smith who pricks a horse and conceals the fact; punish the fellow to the extent of your power. But the man who pricks a foot and acquaints you with the circumstance, deserves civility. The last enables you to take proper measures, such as paring out, etc., and thereby you avoid all unpleasantness. The first braves chances with your living property, and deserves to suffer if the hazard go against him.

QUITTOR.

This is a severe and painful disease. Many a horse is, at the present moment, working with a suppurative wound above the hoof, within the interior of which run numerous sinuses. The police arrest the driver of the horse when the condition is so bad as permits the collar to wring

the shoulders. Of all other shapes of misery they seem ignorant. Animals limp over the stones, every step being an agony; but the policemen look on at such pictures with placid countenances. Horses are driven at night in a state of glanders which renders them dangerous to mankind; yet no officer thinks of looking at the head of an animal for the sign of suffering or the warning of public peril. Creatures, in every stage of misery, may be seen openly progressing along the streets of the metropolis; but so the shoulders be sound, the brute who goads them forward performs his office with impunity. Still, it is something gained, that the law has recognized the want of man's *absolute* power over the feelings of those creatures intrusted to his care. Let us hope, as knowledge extends, the legal perceptions will be quickened. It is partly with this view that the present "illustrated work" is published.

Quittor is a terrible disorder. To comprehend thoroughly the pain which accompanies it, the reader must understand the structures through which it has to penetrate, and the substances it has to absorb. All parts are slowly acted upon in proportion as they are lowly organized. Cartilage is the structure into the composition of which no blood-vessels enter. Next to cartilage is bone, which, though supplied with vessels, is, on account of its mixture with inorganic matter, exposed only to slow decay, and the exfoliation of which is effected at a vast expense to the vital energy. These substances mainly compose the foot of the horse. In addition, there is ligament, almost as slowly acted upon as bone; disease in which substance is accompanied by the greatest anguish. Horn is an external protection; but that material, though an animal secretion, is strictly inorganic: when cut it does not occasion pain—neither does it bleed. If a portion of horn should press upon the flesh it must be removed by the knife; for, unlike the more highly-gifted structures, there is no chance of its being absorbed.

The hoof, therefore, being the external covering to the foot of the horse, and not being liable to the same action as organic secretions, serves to confine pus or matter when generated within its substance. Pus could work through the largest organized body; but it cannot escape through the thinnest layer of horn. Now, most of the other substances which enter into the composition of the horse's foot are such as slowly decay; but those parts which slowly decay being without sensation during health, occasion the most extreme agony when diseased.

The cause of quittor always is confined pus or matter, which, in its effort to escape, absorbs and forms sinuses in various directions within the sensitive substances of the hoof. In the hind feet of cart-horses quittor generally commences at the coronet; the coronet is wounded or bruised by the large calkins or pieces of iron turned up at the back of

the hind shoes, which are universally worn by animals of heavy draught. Any one who has punctured or cut the coronet of a dead horse knows this structure is as difficult to penetrate and as hard to divide as cartilage itself; the consequence of an injury to such a part is, the bruise produces death of some deep-seated portion of the compact coronet. Nature, after her own fashion, proceeds to cast off that which is without vitality, or, in other words, she divides the dead from the living tissues by a line of suppuration; but the matter thus located cannot readily escape through the harsh material of the horse's coronet. It is confined and becomes corrupt, while the constant motion of the foot and the higher organization of the secreting membrane of the horn inclines the pus to take a downward direction. However, it is more difficult for pus to pierce the horny sole than to penetrate the coronet; so the effort is renewed above; numerous pipes or sinuses are thus formed upon the sensitive laminæ; the fleshy sole is often under-run, and this mischief goes on until the coronet, which becomes of enormous size, at last yields to the increasing evil.

Another cause is pricking the sensitive part of the foot with a nail during shoeing; the wound generates pus, the pus cannot penetrate the horn, and the motion of the coffin-bone causes it to absorb upward, until after some time it breaks forth at the coronet.

DIAGRAM.

Which supposed the outward covering of the coronet and the horny wall of the hoof removed, to expose the ravages of quittor, when commencing in the coronet of a heavy horse.

DIAGRAM.

The covering of the coronet and horny crust supposed to be absent, and exposing the manner in which any suppurating injury to the sole of the foot ultimately causes a wound above the hoof.

Another cause is corn; the horse's corn is nothing more than a bruise; the bruise, in some instances, is severe, and takes on the suppurative action. The pus, as before, is confined, and by the motion of the coffin-bone it is propelled upward till it breaks forth at the coronet, which, as before, enlarges to deformity; in short, any injury done to the sole of the foot or to the coronet above it may produce quittor.

The leading sign of quittor, before it breaks, is a large swelling at the coronet, attended with heat and excessive lameness. In cart-horses, it is usually present in the hind feet; but in the lighter species it more frequently occurs in the fore feet. It generally appears upon the inner

side of the hoof, though, of course, it has often been witnessed upon the outer coronet. Quittor becomes a huge swelling before it breaks. The amount of tumefaction symbolizes the amount of anguish; it is, indeed, a most painful disorder.

A QUITTOR, AS IT DENOTES ITS EXISTENCE BEFORE THE PUS ABSORBS ITS WAY THROUGH THE CORONET.

A QUITTOR, AFTER THE PUS HAS FOUND AN EXIT AT THE CORONET.

The animal, after the pus has found vent, becomes easier; fever departs; the appetite returns, and the enlargement greatly diminishes.

In the cure of a quittor, all depend upon the time during which the disease has been allowed to exist; if brought under notice at first, and from an examination a belief is confirmed that the sinuses are wholly superficial, no treatment is comparable to the plan of slitting them up, the method of doing which will be described in a subsequent chapter; this at once affords relief. The horse, which was limping lame, upon getting up puts the foot fearlessly to the ground, and trots sound.

If we have reason to believe the matter has burrowed inwardly, and that one or more sinuses have penetrated the cartilages and threaten the deeper-seated parts, still we should settle with the knife all those pipes which are superficial. This gives a better view of the structures supposed to be diseased; then, if among the matter thrown out by the healing wounds there is seen a speck or two of fluid, which, being gelatinous and transparent, looks dark among the opaque, creamy pus, be sure there remains further work to be accomplished.

DIAGRAM.

An attempt to depict the small size of the transparent fluid, indicating the existence of a sinus, when it appears at the wound whence issues the stream of thick and creamy pus.

Cut a small twig from the stable broom; this is pliable, and, where a sinus is concerned, makes the best possible probe. With a knife, render it perfectly clean, as well as round or blunt at one end; then, while an assistant holds up the foot, insert it in the center of the dark fluid. If it should not at first detect an opening, you must not give up the trial; the probe must be moved about, and even a smaller one procured. A sinus does exist; of that you have positive proof; the pipe being found, mix some powdered

corrosive sublimate with three times its bulk of flour; then wet the probe; dip the probe into the powder and afterward insert it into the sinus. Do this several times till you feel certain that every portion of the pipe is brought in contact with the caustic.

The horse, subsequently, will become very dull; the foot will grow very painful: thus it will continue for two days. About the third day, a white, curd-like matter is discharged from the orifice. The lameness disappears, and the spirits are regained.

It is against our inclination to publish such directions; but the author has knowledge of no gentler or more speedy measure. The better plan for the gentleman who is tender of his servants' feelings, and infinitely the cheaper for the person who is regardful of his pocket, is to have every animal inspected by a qualified veterinary surgeon so soon as it displays acute lameness. Were such the practice, corn, prick of the foot, or wound of the coronet need not run on to quittor. That is an affection which loudly pronounces man to utterly disregard the welfare of his most willing slave. It always originates in neglect. It always requires time for its development. It springs from that idle and silly maxim which, when a horse falls lame, treats the circumstance as though the honest animal were shamming, and teaches a hard-hearted proprietor to work the poor drudge sound again.

CANKER.

Thrush is a disease that causes a certain liquid to be secreted which has the property of decomposing the horn. **Canker** is a disease which not only is attended with a liquid having a like property, but the last-named affection also causes fungoid horn to be secreted. Canker, therefore, appears to be an aggravation of thrush; and anybody who has been much among the animals of the poorer classes may have observed these diseases lapse into each other: thrush will, through neglect, become canker.

Thrush appears to be the commencement of the disorganization of the food. Canker is the total perversion of the secreting powers belonging to the same organ. In thrush, a foul humor having a corruptive property is poured forth. In canker, something is superadded to this. The horn itself is sent forth in large quantity as a soft, unhealthy material, totally divested of elasticity and devoid of all healthy resistance.

Any animal, being exposed to the exciting cause, may exhibit thrush; but, before canker seems capable of being produced, poor living must have undermined the constitution. Old horses—pensioners, as they are humanely termed—when turned out to grass, frequently have canker,

which otherwise should be confined to the animals of poverty, on which bad lodging, no grooming, stinted food, and hard work produce sad effects. The stable in which a case of canker occurs is lamentably disgraced. Every attendant in it ought to be discharged, as the surest evidence of a gross want of industry is thereby afforded.

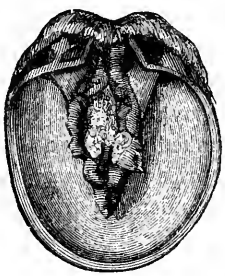
A horse, perhaps once the pride of the favorite daughter, may descend to be the hack of some bawling dust collector. Its wants increase as age progresses; but with the accumulation of years its hardships augment. It is sad, very sad, to stand within the shed of some corn-chandler, and witness, as the day draws in, ragged boys advance and shout out, "Three pen'orth o' 'ay bunds." Upon those hay-bands it is even more sad to reflect what creature will be obliged to subsist—probably the darling once of some aristocratic children! Now, cramped and diseased, it may receive no other food between this time and the following evening. The diet being meager, all the rest is on a parallel. The wretched animal is purchased only for such a space as it may pull through before it passes to the knackers. Every day of life is looked upon as a clear gain, for the carcass may be sold for very nigh the price which has been paid for the living body. The commonest attention is denied; its bed is filth, and its nightly hay-bands are cast upon the flooring.

What, the humane reader may inquire, can be done to prevent such a state of things? Something surely might be accomplished. To make men good, it is first necessary to educate them by communicating knowledge and also by preventing the commission of wickedness. Were the sanitary laws enforced in their spirit, no man would keep an animal who had not proper accommodation for the creature he possessed as a property. A horse or a donkey consumes much more air than any human being. The air ejected from the lungs of a quadruped is deprived of all life-sustaining qualities. The filth of a stable is as corruptive as any cess-pool connected with a laborer's cottage. The atmosphere which can in the horse engender disease cannot promote health in the superior animal. Yet how does it happen that, while sanitary reports are eloquent upon filth and fluent about cess-pools—while they descant learnedly upon foul abodes, and enter into all particulars concerning corrupted atmosphere—the close, contaminated stables in which all costermongers, and some gentlemen, shut up their drudges when the labor of the day is over, are never alluded to, are altogether abjured, as though such nuisances had no existence?

Canker, like thrush, is not generally attended with much lameness. It often astonishes us that, with a foot in such a condition, the animal can progress so soundly. It invariably commences at the seat of thrush or in the cleft of the frog. A liquid more abominable than that of thrush,

and rather more abundant, issues from that part. Likewise it frequently exudes from the commissures, which unite the horny sole to the frog. The horn, also, becomes not only disorganized, but more ragged than in thrush. It bulges out at first, and ultimately flakes off, exposing a substance not much more resistant than orange-peel. The substance is horn in a fungoid state. Its fibers run from the center to the circumference; and between the space of each fiber is lodged a clear liquid, which becomes tainted and dark colored by mingling with the horn that it dissolves and corrupts.

The fungus is secreted in quantity, and always is most abundant when located about the edge of the sole. Here the papillæ are largest, and



THE PRIMARY ESTABLISHMENT OF CONFIRMED CANKER.

The horn turned back, so as to display the altered state of the frog, which indicates a severe attack of the disease.

THE SECOND STAGE OF CANKER.

Showing the great abundance of fungoid horn secreted around the margin of the foot. No notice is purposely taken of the frog in this illustration.

here the granulations attain their greatest magnitude. The unresistant horn of canker becomes somewhat hard upon the surface of the sole, and large flakes peel off. Cut into, it displays no sensation; and this is fortunate, inasmuch as it considerably reduces the difficulties surrounding the treatment of a badly-cankered foot.

Concerning treatment, when the disease is confined to one hind foot, or even affects both posterior feet, the case may be undertaken with some degree of confidence. When it has involved one or more of the fore feet, it is always difficult to eradicate; and, in the majority of cases—being guided by the age of the animal—a cure had better not be attempted.

When a horse is cankered all round, the disease is apt to seem capricious. It may be cured in three feet; but it will linger in the fourth, resisting art's resources. Suddenly measures before tried in vain seem to be endowed with marvelous efficacy. The diseased member, which hitherto no treatment could touch, now heals as by its own accord. However, before we can express the full of our satisfaction, canker once

more breaks out again in one of the feet which had been cured; thus the affection dodges about till patience is exhausted.

Canker has hitherto been reckoned an intractable disorder. It is mostly seen in heavy horses, with weak, flat feet. These creatures proverbially receive but little grooming. They are esteemed only for their labor, and honored with small attention, which does not decidedly fit them for their work. Their stables are seldom to be cited as examples of what a horse's home should be. Their beds are never too clean; and a number of foul disorders, as thrush, grease, etc., are located among them. Their food is generally measured by the scale of profit and loss; for few cart-horses, in the generality of establishments, can boast of any extraordinary care being lavished on their comfort.

For the treatment of canker, the first thing is to attend to the stable. See that the building is lofty and well drained; that the ventilation is perfect, and the bedding unexceptionable. Then inspect the water, the oats, and the hay. Allow the horse a liberal support, and with each feed of oats mingle a handful of old beans. These things being arranged, order the animal into the forge. Cut away every portion of detached horn. When that is done, pare off carefully so much of the soft, diseased horn as the knife can readily separate. Then apply a dressing of the following strength to the diseased parts :—

Chloride of zinc	Half an ounce.
Common flour	Four ounces.

Mix, and apply dry on the foot.

To the sound parts use—

Chloride of zinc	Four grains.
Flour	One ounce.

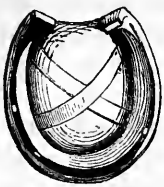
Cover over the sound parts before you begin to dress the fungoid granulations.

Afterward tack on the shoe. Pad well, so as to obtain all the pressure possible; and fasten the padding on the foot by means of cross pieces of iron driven firmly under the shoe. Let the horse be carefully groomed, and receive four hours' exercise daily.

On the second day remove the padding. Cut off so much of the granulations as appear to be in a sloughing condition. Repeat the dressing, and continue examining and redressing the foot every second day. When some places appear to be in a state of confirmed health, an application of the following strength should be employed to such parts; but where the granulations continue to sprout, or the horn appears to be of a doubtful character, the caustic mixtures of the original strength must be used :—

Chloride of zinc	Two grains.
Flour	One ounce.

After some time, the dressings may be lengthened to every third day, but should not be carried to the distance which some practitioners recommend. When so long a period elapses between each examination,



THE BOTTOM OF A HORSE'S FOOT WHICH HAS BEEN DRESSED FOR CANKER, SHOWING HOW THE CROSS PIECES ARE PLACED AND FIXED.

AN IMPROVEMENT IN A CANKERED FOOT.

1. That portion of a cankered foot which is advancing toward a healthy condition.
2. Canker in a mitigated form, but still present.

the foul and irritating discharge, being confined, does more injury than the delay can possibly produce good.

In the plan of treatment here proposed, the chief reliance is placed on the action of chloride of zinc. It is the peculiar property of that agent to suppress fungoid granulations. The author has some experience in the use of this salt. Whenever he gave it to a groom to apply, and subsequently he found the wound clogged with proud flesh, the man was accused of having neglected to employ the lotion. The evidence on which the charge was made never, in a single instance, proved erroneous. To suppress fungoid granulation is to cure canker.

The application here advised is, moreover, cleanly. It is the most powerful disinfectant. It does not discolor, like the messes now in general use. It is more gentle in its action than undiluted sulphuric acid, etc. etc. It will cause none of those terrible fits of agony, during which all applications have to be removed, while the foot has to be bathed and poulticed. Notwithstanding all authors agree that the absence of water and the presence of pressure are indispensable to the cure of canker, the frequent dressings will not endanger the life, nor leave the foot in that condition which entails a deformed hoof upon the horse for the remainder of its existence.

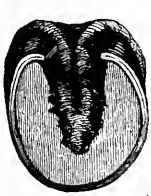
THRUSH.

Veterinary writers are very fond of splitting hairs about words. **Thrush**, therefore, in most books, becomes "frush;" notwithstanding, if the reader should consult any professional authority, or a professor at either of the colleges, the person so appealed to will decidedly designate the disease as it is here spelled. The disorder therefore bears, in these pages, the name it carries in ordinary speech, and all far-fetched distinctions are discarded.

THRUSH IN THE FORE FOOT, WITH A THICK CRUST, A CONCAVE SOLE, AND A SMALL FROG.

Thrush is a foul discharge issuing from the cleft of the frog, and attended with disorganization of the horn. It is derived from two causes—either internal disease or bad stable management. When internal disease gives rise to thrush, it is present in the fore foot. The quarters of the hoof are strong and high; the sole is thick and concave; the frog small and ragged. When bad stable management provokes the disorder, it shows itself in the hind foot, which may be of any shape; but the frog is generally large, while the discharge is more copious than in the former instance.

It is sad to think that the creature which lives but to toil, and whose existence is a type of such slavery that its greatest freedom is to labor, should be begrudged the bed whereon it reposes, or be doomed to stand in filth which will generate disease. The horse's foot is not very susceptible to external influences. It is incased in a hard and inorganic, yet elastic substance. Thus protected, it appears like praising the ingenuity of man when we say such a body is not proof against his neglect. The hoof is made to travel through mud and through water; it is created to canter over sand and over stones. It is capable of all its purposes; but it only seems not fitted to be soaking days and nights in the filth of a human lazar-house. The drainage of the stable is too often clogged; the ventilation bad; the bedding rotten, and more than half composed of excrement. All that passes through the body, from the inclination of the flooring, tends toward the hind feet. Over this muck the animal breathes. In it the creature stands, and on it the victim reposes.

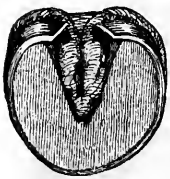


THRUSH IN THE HIND FOOT.

No wonder the horn rots when implanted in a mass of fermenting filth. The fleshy, secreting parts, which it is the office of the hoof to protect, ultimately become affected; they take on a peculiar form of irritation; from the cleft of the frog a discharge issues; it becomes colored and

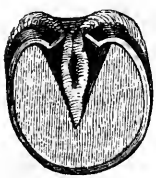
offensive through being mixed with the decaying horn; the smell is most abhorrent; frequently it taints the interior of the place, and to the educated nose thus makes known its presence.

The first thing is to clear the stable, then to cleanse it thoroughly. Bed down the stalls with new straw, and attend to the animals themselves. Wash the feet well with water, in every pint of which is dissolved two scruples of chloride of zinc. The fetor will thus be destroyed, and the animal be made approachable. Place some of the fluid, to be used as required, near the smith, while the man cuts away the diseased frog. All the ragged parts are to be excised. The knife is to be employed until all the white, powdery substance is effectually removed.



AN ILLUSTRATION OF THE ABUNDANCE OF WHITE POWDER INVESTING DECAYED HORN, AND OFTEN FOUND AFTER THE RAGGED PORTIONS OF A THRUSHY FROG HAVE BEEN REMOVED.

The knife must then be used fearlessly. Every particle of the colorless investment of the frog must be excised. This is absolutely necessary toward the cure. It must be accomplished, although the flesh be exposed, or a large, bulging frog be reduced to the dimensions indicated in the annexed engraving.



Then the shoe is to be nailed on, and the horse to be returned to a clean stall.

The cause being removed, the effect will soon cease. No ointments are required. A little of the chloride of zinc lotion, three grains to the ounce of water, may be left in the stable, and the keeper should receive directions to bathe the frog with this once a day, or oftener if required. A piece of stick, having a little tow wrapped round one end, should also be given to the man, so that he may force the fluid between the cleft of the frog. No greasy dressing need be employed. The ordinary shoe is to be used. The diseased part is to be left perfectly uncovered, so that it may be the more exposed to the sweetening effects of pure air, while the earliest indication of any further necessity for the knife may be readily perceived. When the stench has disappeared, a little of the liquor of lead, of its original strength, will perfect the cure; and all that is requisite to prevent a return of the disorder is a reasonable attention to the cleanliness of the stable.

At this place, however, the reader may well reflect that, if the filth of the stable is capable of rotting the resistant and insensitive horn of the horse's foot, how much more is it likely to affect some of those delicate structures of which the bulky frame of the animal is composed! The air in which a man might object to live is altogether unfit for a horse to inhale. It is true, animals have breathed such an atmosphere, and con-

tinued to exist. So, also, is it true that men have been scavengers, and have followed that calling on account of what they esteemed its extraordinary healthfulness. Neither case establishes aught. The animal is by nature formed for large draughts of pure air. All other sustenance is as nothing, if the primary necessity of life be withheld. Tainted atmosphere is the source of more than half the evils horse-flesh is exposed to. Glanders, farcy, inflammation of the air-passages, indigestion, bowel complaints,—in fact, all diseases save those of a local character may spring from such a parent. Let every horse-keeper, therefore, if from no higher motive, at all events to conserve his property and to promote his pecuniary interest, be especially careful about the purity of his stables.

When thrush occurs in the fore feet, it is generally significant of navicular disease, and is most frequent in horses which step short or go groggily. The hoof feels hot and hard; a slight moisture bedews the central parting of the very much diminished frog. No odor may be smelt when the foot is taken up; but by inserting a piece of tow into the cleft of the frog, the presence of the characteristic symptom will be made unpleasantly apparent.

In this case, it is best to remove the ragged thrush and unsound horn, doing so, if required, even to the exposure of the sensitive frog. Afterward, simply wash the part with a little of the chloride of zinc and water, previously recommended. Repeat the cleansing every morning; the intention being, not to remove the thrush, as the horse mostly goes lame the instant that is stopped, but merely to correct the pungency of the morbid discharge, and thus prevent it in some measure from decaying the horn.

Clay, cow-dung, and other favorite filths, employed for stopping the horse's feet, if long continued, will produce thrush.

The worst specimen of the affection the author has encountered, was in a horse which had been turned into a moist straw-yard and neglected. The thrush generally witnessed in the hind feet may be present in all four; but the writer knows of no instance in which the thrush peculiar to the fore feet was also observed in the posterior limbs.

Thrush does not generally provoke lameness. In its more aggravated forms, however, it interferes with the pace; and the horse having only incipient thrush is liable to drop suddenly, if the foot be accidentally placed upon a rolling stone. Now, knowing our roads are made of stones, and that the bottom of the horse's foot is, in the ordinary manner of shoeing, entirely unprotected, it is curious to state that this disease is commonly not esteemed unsoundness. Any thrush, when present, may lead to acute lameness; then the lameness would be unsoundness;

if thrush simply interferes with the action, although it endanger the safety of the rider, it is, by the code of veterinary legislation, esteemed no reasonable objection to the soundness of a horse. In the author's opinion, any animal should be esteemed unsound which has suffered from loss of or from change of any structure that ought to be present, or has any affection which reasonably could subject it to remedial treatment.

OSSIFIED CARTILAGES.

This signifies a conversion into osseous structure of the cartilages naturally developed upon the wings of the coffin-bone, or the bone of the foot. Here is a drawing of the largest specimen of this transformation which the writer ever witnessed. This was borrowed from the museum of T. W. Gowing, Esq.; and, from the magnitude of the disease, the writer should imagine the posterior of the pastern must have been in the living animal somewhat deformed.

OSSIFIED CARTILAGES.

The lateral cartilages of the horse's foot have undergone change and become bone; being now continuous with the os pedis.

In heavy horses, working upon London stones, so certain are the cartilages to become ossified that several large firms pay no attention to this defect. They prefer an animal with a confirmed disease to a sound horse, which will be certain to be ill during the change, and the extent of whose subsequent alteration no one can predicate. So far these purchasers act wisely; but, in horses designed for fast work, **ossified cartilages** are a serious defect. They frequently occasion lameness, and always interfere with the pleasantness of the rider's seat. When accompanied by ring-bone, ossified cartilages give rise to the most acute and irremediable lameness.

Ossified cartilages are incurable. No drugs can force Nature to restore the original structure which has been destroyed. Once let a cartilage become ossified, and it remains in that condition for the creature's life. There is little difficulty in ascertaining when this change has taken place. The hand grasps the foot just above the coronet; the fingers are on one side, and the thumb upon the other. The cartilages lie at this place, immediately under the skin. Cartilage is soft, pliable, and semi-elastic. It yields very readily to pressure. However, when the thumb and fingers forcibly press the part, if, instead of feeling the substance under them yield, the hand is sensible only of something as hard as stone, or any way approaching to such a character, that is proof positive the

cartilages are ossified, or are approaching change. If the horse has recently gone lame, and the seat of cartilages feels of a mixed nature—partly soft and partly hard—apply a blister to the coronet, so as to convert that which is a subacute process into an acute action, and with the cessation of activity hope to stop the deposit. Repeat the blister if absolutely necessary; but there is no occasion to subject more than the coronet, and a couple of inches above that structure, to the operation of the vesicatory. Indeed, blisters act more effectually upon confined spaces. This is all that can be accomplished, save by good feeding and liberal usage: these are essential, because every abnormal change denotes a deranged system; and this is, in the animal, soonest mended by generous diet. Perfect rest and two pots of stout per day may even be allowed, should the pulse be at all feeble.

THE CERTAIN TEST FOR OSSIFIED CARTILAGES.

ACUTE LAMINITIS, OR FEVER IN THE FEET.

This term implies that the disease is confined to the laminæ; the word certainly warrants an inference that the other secreting surfaces within the hoof are not implicated; such a meaning is generally conceived to be intended. The name, by inducing erroneous opinion, does much injury; the old appellation of fever in the feet is, therefore, much more characteristic and altogether more correct.

The entire of the fleshy portion of the foot is involved in this terrible affliction; any man, who has had an abscess beneath some part where the cuticle is strong, or who has endured a whitlow, may very distantly imagine the pain suffered by the horse during fever of the feet. Such an individual, if his creative powers be very brilliant, may vaguely conjecture the torture sustained by the quadruped; but no power possibly can realize to the full the anguish sustained by the animal. Man does not, like the horse, rest upon his finger's end, and, if he did, the pain he would then suffer could not be likened to the terrible affliction borne by the animal, for the following reasons: What is the weight of any man to that of a quadruped? What is the thickness of his skin or the substance of his nail to the hardness and stoutness of the horse's hoof? The human skin is elastic, and the end of the finger permits some swelling of its fleshy portion; but the secreting membrane of the horse's foot lies between two materials almost equally unyielding. Bone is within,

and horn is without; the heat soon dries the last and deprives it of its elasticity; the first is naturally unyielding; thus the secreting substance, largely supplied with blood, because of inflammation, and acutely endowed with sensation when swollen and diseased, is compressed between the two bodies as in a vice. To conceive the amount of anguish and to imagine the violence of the disorder, we have only to recognize the pathological law, that Nature is conservative in all her organizations; she protects parts in proportion to their importance to the welfare of her creatures, and reluctantly allows injury to be inflicted on any vital organ, though she may even permit deprivation of those members which are not essential to the animal economy.

A man may lose a leg; he can live, enjoy life, and to a certain extent effect progression with a wooden substitute. Touch the heart of a man, however, and being ends. The heart is guarded by the ribs, and so securely is it protected that, even in battle, the organ is seldom punctured; the hoof of the horse is almost as important to the animal as is the heart to the human being. In a free state progression is necessary to the support of the body; when domesticated, the horse is valued according to its power to progress.

Yet, the member so important to the creature is, by the nature of **laminitis**, frequently disorganized, and a valuable quadruped, by the affliction, may be reduced from the highest price to a knacker's purchase money.

There is some dispute about the kind of hoof most liable to this disease. English authors incline toward the weak or slanting hoof. Continental writers, however, suppose the strong or upright hoof is most exposed to the affliction. Neither party, however, assert any kind of hoof to be exempt; therefore, it may be supposed, were all circumstances similar, every kind of foot would be equally subjected to laminitis.

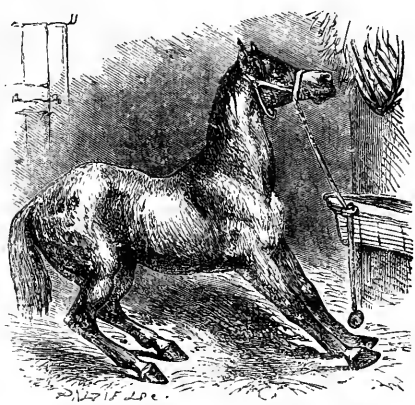
There is but one cause for **acute laminitis**—man's brutality. Horses driven far and long over hard, dry roads, frequently exhibit the disease. Cab and post, as well as gentlemen's horses, after a fine day at Epsom or at Ascot, not unfrequently display the disorder. Animals which have to stand and strain the feet for any period, as cavalry horses upon a long sea voyage, if, upon landing, they are imprudently used without sufficient rest, will assuredly fail with this incapacitating malady. Any extraordinary labor may induce laminitis. Hunters, after a hard run, and racers, subsequently to heats, are liable to be attacked; especially should the ground be in the state we have before intimated.

Acute laminitis does not immediately declare itself; the pace of the animal, when its work is drawing to a close, may be remarkable; but

this is attributed to the effects of exhaustion. The creature reaches the stable; the surface of the body is rubbed over; the manger and the rack are filled; a fresh bed is quickly shaken down, for, in the opinion of grooms, quiet does horses extreme good. The animal is left for the night, under the impression that it has everything one of the race could require.

The next morning the horse is found all of a heap, and the food untouched; the flesh is quivering; the eyes are glaring; the nostrils are distended, and the breath is jerking. The flanks are tucked up, the back is roached, the head is erect, and the mouth is firmly closed; the hind legs are advanced, to take the bearing from the inflamed fore members; the front feet are pushed forward, so as to receive the least possible amount of weight, and that upon the heels; but the feet thus placed are constantly on the move. Now, one leg is slightly bent; then, that is down and the other is raised; the horse is, according to a vulgar phrase, "dancing on hot irons."

The first indications—food untouched, glaring eyes, etc.—represent only excessive agony; the position of the body is symptomatic. The hind feet are thrust under the body in order to take the weight from the front, or the diseased organs; the fore feet are thrust forward and the head held erect, that the inflamed parts may be as much as possible beyond the center of gravity. In this attitude the wretched quadruped will stand, its sides heaving and its flesh creeping with the pain within the hoofs, and with the fire that burns within the blood. The teeth are occasionally heard to grind against each other; expressive sounds sometimes issue from the throat, and partial perspirations burst forth upon the body; it is a horrible picture of the largest agony!



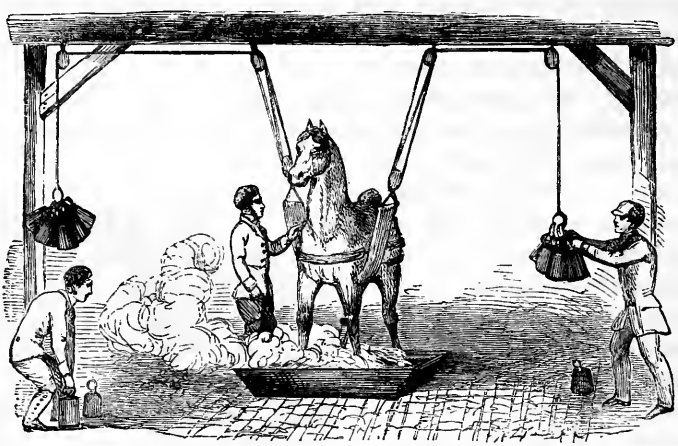
ACUTE LAMINITIS, OR FEVER IN THE FEET.

The fore feet are mostly the seat of the disorder; all four may be involved, but the author has only witnessed the two front affected. The implication of the others are rather recorded wonders than general facts. The writer, in his professional experience, has met no one to whom a case of laminitis involving all four hoofs has been submitted.

Everything concerning laminitis is in confusion. It is not yet authoritatively ascertained whether horses lie down or stand up—whether the

shoes should be taken off or left on—and what kind of treatment it is proper to adopt. Any dispute about general facts pronounces both parties wrong; it assures us that the experience of the disputants is somewhat limited. The circumstances cannot be very marked where the recognition is not universal: the treatment can only be not confirmed, because none attended with conspicuous benefit has been proposed.

Horses do often lie down in laminitis; but they more generally stand. When down, they should be suffered to remain; and when up, the first thing done should be the employment of slings. Place the cloth under the belly with the least possible noise; the man the horse is accustomed to, with orders to soothe the animal when alarm is excited, should be stationed at the head. The men who are arranging the slings should pause on the slightest sign of fear, and only resume their labor when



A HORSE IN SLINGS, WITH THE FORE FEET IN HOT WATER, FOR ACUTE LAMINITIS.

confidence is restored. The ropes, however, must not be drawn tight and fixed. The ends of the cords should, by means of two extra pulleys, be carried to some distance from the animal. To the end of each rope ought to be fastened a stout ring, and on this, by means of hooks, weights should be suspended. As the weights are added, the man should caress the sufferer till sufficient counterpoise be attached to take the principal bearing from the feet without offering much obstacle to the breathing.

With regard to the shoes, we should first soften the hoof by allowing the feet to soak in warm water in which a portion of any alkali has been dissolved. The slings being applied, the fore feet are to be placed in a trough of hot, soft water, and allowed to remain there till the hoof is quite pulpy. Then one foot is to be gently raised and the trough par-

tially removed. All this must be done very quietly—not a word being spoken—and all operation suspended at the appearance of the smallest alarm. The man at the head must not for an instant quit his post.

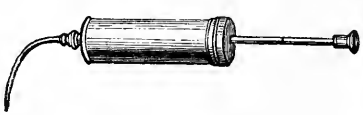
The foot being released from the water, a sharp-pointed knife is to be employed and the horn cut, so as to free every nail, till the shoe drops off; but the iron should not be allowed to clatter on the ground.

This method is infinitely better than the common practice of taking off the horse's shoe. The smith removes the shoe by a wrench, using his pliers for the purpose of gaining extra power. No doubt the metal had much better remain on than be thus rudely displaced. But, in removing the shoe from a softened foot, no smith is necessary, and no smith should be employed: the veterinary surgeon should himself cut out the nails; and no matter if an hour or two be occupied over each foot. In laminitis there must be no hurry.

THE MANNER IN WHICH THE NAILS, WHICH FASTEN ON THE SHOE, ARE TO BE RELEASED FROM THE HORSE'S HOOF DURING ACUTE LAMINITIS.

Before the shoes are removed, half a drachm of belladonna and fifteen grains of digitalis should be placed in the horse's mouth. Both drugs should be gently introduced, not as a draught or a ball, but in substance, or in the smallest possible bulk. These medicines should be repeated every half hour, till the breathing is easier and the pulse somewhat altered in character. Then some additional weight may be added to the slings; and, by taking advantage of similar opportunities, the animal may be eventually lifted almost off the ground without displaying any inclination to resist.

When the horse is in this position, open the jugular vein with a lancet, making the least possible flurry. Abstract one quart of blood,



THE SYRINGE TO BE EMPLOYED TO INJECT BLOOD-WARM WATER INTO THE VEINS DURING ACUTE LAMINITIS. THE MARK ON THE ROD DENOTES HOW FAR THE HANDLE IS TO BE PUSHED DOWN. (See *Enteritis*, p. 170.)

which may be obtained with the greatest ease. Have ready a quart syringe filled with water; inject one pint into the orifice whence two pints of blood have been abstracted. The effect will be produced in a few minutes. Copious purgation and perspiration will ensue, and the fever will be greatly abated. Clothe the horse well up. Place before him a pail of thin gruel with a bundle of green-meat, and enough has been done for one day. But mind and leave two men to watch in the stable throughout the first three nights.

On the following morning give a dose of ether and laudanum—two ounces of both in a pint of water. Let the horse take his own time in swallowing: do not care if half the drink should be lost. In fact, if the attempt to give the physic should call forth much opposition, abstain from administering it: quiet is of more importance than medicine. On that account, strict orders should be given to admit no visitors, and the strictest injunction concerning silence should be enforced.

The pulse and breathing must be watched; and, as either appear to augment, the drugs before recommended must be introduced. Should the artery on either side of the pastern throb, that sign indicates the foot to be congested. This condition must be relieved. With a lancet open both pastern veins, which are sure to be in a swollen state, and plunge the foot up to the fetlock in warm water. A little blood abstracted by this method does more good than the ample venesections so generally advised, but which, from their tendency to lower the system, are apt to prepare the way for the worst terminations to acute laminitis. Our object should be to conquer the disease without reducing the strength; had the horse ten times its natural vigor, such an affliction as acute laminitis would more than exhaust it all. The failure of former practitioners has been chiefly owing to their inattention to this fact.

While the affection lasts, these measures must be pertinaciously adopted; the feet, the entire time, must be repeatedly put in warm water, not only to soften the horn, but because the chief pain is caused by the congested or swollen condition of the secretive portion of the foot; congestion, likewise, induces the terminations to be most feared; heat or warmth is perhaps the best means of relieving loaded vessels. Cover over the water or blind the horse's eyes while in the slings, because acute disease is likely to disorder the vision, and a sick, imprisoned animal is too apt to be startled by the reflection of its own image. The author has had reason to lament the neglect of such necessary precaution.

The termination to be feared is disorganization—either from the casting of the hoof or the descent of the coffin-bone from its natural situation. The first result is preceded by chronic suppuration. A slight division is observed between hair and horn; and from the opening thus occasioned a small quantity of unhealthy pus issues, mingled with much bloody serum. Ultimately the entire hoof loosens and drops off, exposing the fleshy parts beneath. Now, all these fleshy parts must have been diseased before they could have separated from their secretion, and such fleshy parts are not the laminæ only, but all those represented in the engravings on page 373.

The sudden exposure of parts which, during health, are covered and protected, cannot otherwise than cause an extraordinary effect upon the

body of the sufferer. Persons who have lost a nail seldom have that substance renewed in all its original integrity. Deformity or an imper-

THE SENSITIVE LAMINA AND CORONET DIVESTED OF THEIR HORNY COVERING.

THE SENSITIVE SOLE—FROG AND BARS DIVESTED OF THEIR HORNY COVERING.

fect secretion is generally retained to mark the deprivation. Nature appears averse to the restoration of any of her original structures.

Such a catastrophe is denominated sloughing of the hoof. After that has occurred it is useless to prolong the suffering by permitting the horse to live. Doubtless in time a sort of new hoof would be produced, but it would only be a deformity. It would want the toughness and strength of the original formation.

DIAGRAM.

The new horny covering which invests the foot of the horse after sloughing of the hoof, as a termination to acute laminitis.

Such was the hoof which used to succeed sloughing under the old plan of treatment; the author is happy to state he has not witnessed such a misfortune since he has followed the practice which he here recommends.

The suppuration just spoken of was not of the copious kind, but was a tardy secretion mingled with bloody serum; it is astonishing such a fact should not have warned veterinary surgeons against following depletive measures. The effusion, however, of which the writer has next to speak is entirely the result of weakness. It does appear most strange that exhausting treatment should have been pursued as with infatuation, despite of so evident a warning. The parts which in health only secrete horn, during exhaustion throw out serum, or the thinner portion of the blood. This separates the coffin-bone from its attachments, while the imposed weight forces the loosened bone from its natural position. To make this more clear, diagrams of a natural foot, and of one which has suffered distortion from acute laminitis, are represented on page 374. In the natural foot, the pedal bone is situated close to the outer crust; in the laminitic foot, the bone is forced downward toward the sole, which it ultimately penetrates. There is an artery running around the lower edge of the coffin-bone; upon this artery the animal, if suffered to live, would, after displacement of the coffin-bone, be obliged to tread. The consequence is that a horse, having a foot thus distorted, cannot by any possibility take a sound step; it lives in torture and moves in anguish.

This formation has been too generally spoken of as pumice foot, whereas that peculiarity is altogether distinct. Pumice foot does not

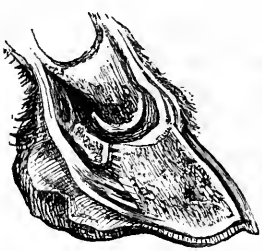
DIAGRAM.

A section of the horse's foot, showing the natural and relative situations of the bones which enter into the formation of the horse's foot when in a healthy state.

DIAGRAM.

A section of the horse's foot after one of the terminations to acute laminitis, exposing the interior of the hoof when the coffin-bone has fallen from its original situation.

entirely incapacitate the horse for labor; it is a chronic disease leading to a very opposite species of distortion, or to a bulging of the sole such as is here illustrated.



A SECTION OF THE HORSE'S FOOT, ILLUSTRATING THE DISTORTION WHICH CONSTITUTES PUMICE FOOT.

THE DEFORMITY WHICH ENSUES UPON DROPPING OF THE COFFIN-BONE.

After dropping of the coffin-bone has taken place, it is commonly said that the hoof, struck upon the spot once occupied by the coffin-bone, emits a hollow sound; such is not the fact.

The space supposed to be empty is immediately filled by an impure horn—a soft, transparent substance, which, if the animal be permitted to live, dries, or diminishes in bulk, and the front of the hoof falls in. The author once beheld, working in a lime-pit near Reigate, an aged animal which, some time previous, had suffered dropping of the coffin-bone; the animal was shod with leather, and had a shoe lifted from the ground by means of large calkins both before and behind. The hoof, however, was terribly misshapen; it hardly admits of such a description

as would be readily understood; therefore the hoof is represented from a sketch made upon the spot.

The other terminations to acute laminitis are metastasis and mortification.

Metastasis is when the fever leaves the feet to fix upon some other and remote part, as the lungs, bowels, brain, eyes, etc. Or, fever of the feet is frequently asserted to be caused by the inflammation "dropping" from those parts into the hoofs; when such changes ensue, the body being already weakened, the attack is seldom of a very acute type; but, nevertheless, it may be attended by disorganization, by distortion, or even by death.

It is a bad symptom should no change be observed in the course of the disorder before the expiration of the fifth day; some sad ending may then be expected, but it does not invariably follow. The animal should be watched night and day; all that can possibly be done to alleviate its suffering should be put into practice. For that end, the writer has found nothing equal in its soothing effects to perfect quietude, and good gruel made with a portion of linseeds and of beans mixed with oatmeal. But be sure that laminitis has departed from the feet before the slings are removed; then, even supposing no metastasis to have occurred, do not suddenly take all support from the horse, but remove a weight every day, so that the restored parts may become gradually used to their original functions. On the first sign indicative of a return to the disorder, restore the full counterpoise and recommence treatment; for acute laminitis is somewhat treacherous. Very cautiously exercise the invalid upon a piece of meadow land; and, as the health appears restored, gradually return to the usual method of treatment.

SUBACUTE LAMINITIS.

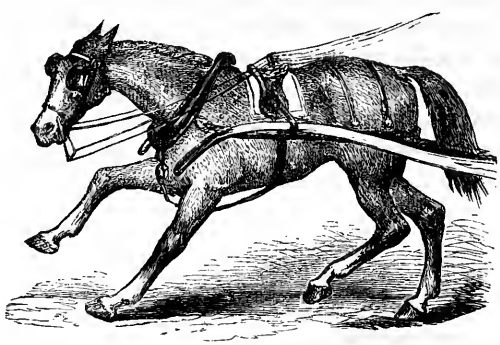
This is a variety of the former disease; the characteristic differences between the two are thus stated by the esteemed late William Percival:—

"In neither form is laminitis the disease of the unbroken or unused horse. Now and then acute laminitis will appear in the four or five year old horse when newly taken into work; more commonly it is witnessed incapacitating the horse when at work, and during the middle period of life. **Subacute laminitis**, on the other hand, is very apt to select the aged and worked animal. Secondly, acute laminitis is the immediate effect of labor, hard either from its distressful character or its endurance. Subacute laminitis, on the contrary, will make its appearance in the stable where the horse has been for some time living in a state of idleness or absolute rest. Thirdly, acute laminitis makes its attack directly

or shortly after the application of the exciting cause; subacute laminitis approaches so gradually that it is often present some days before its existence is discovered. Fourthly, acute laminitis is marked by great suffering and accompanied by raging fever; in subacute laminitis fever is not to be detected, and the mode of progression alone indicates suffering. Fifthly, acute laminitis may terminate in metastasis, suppuration, and mortification; in subacute laminitis neither of these issues is to be dreaded, for, if we do not succeed in producing resolution, dropping of the coffin-bone is the customary ending to the disorder."

The above, quoted from memory, presents a graphic contrast and an admirable portrait of the disorder. It is so eloquent in its brevity that it leaves nothing to be added; therefore the author will at once proceed to state his views of the subject.

Subacute laminitis is always first noticed in the manner of progressing. The master complains that the horse has become slower; that the whip has lost influence over the body; and that the animal, when progressing, appears to jolt more than usual. This last observation indicates the kind of horses to which subacute laminitis is principally confined. Acute laminitis is almost the property of fast saddle-horses; the subacute variety more especially belongs to harness-horses. The author



THE MANNER OF PROGRESSING WHEN SUFFERING UNDER SUBACUTE LAMINITIS.

has lately seen specimens of the subacute disease tugging those vehicles which were once fashionable and which were called "cabriolets." The animal suffering this disorder endeavors to bring the heels only to the ground. All its fumbling gait, its supposed sluggishness, and want of appreciation for the whip are to be attributed to this desire—to take the weight as much as possible from the seat of agony.

The success of treatment, in a great measure, depends upon the disorder being early detected. Get the horse immediately into slings, as was directed for acute laminitis, and proceed in the same manner with the

removal of the shoe. Omit all bleeding. If the bowels are costive, allow a portion of green-meat until the evil is removed; but do not produce purgation. All medicine of a debilitating character must be withheld. Give, night and morning, a quart of stout; allow two drinks, each containing one ounce of ether, in half a pint of water, during the day. This, with half-drachm doses of belladonna as needed to allay any symptoms of pain, will constitute the whole of the treatment.

As regards food, it should consist of sound oats previously ground, and a moderate allowance of crushed, old beans. The water should be whitened, and all hay strictly withheld. The animal should not be left night or day, and gentleness should be enjoined upon its attendant. The food, however, should not be without limit; five feeds of corn are enough for one day, if the horse will eat so much.

Should dropping of the coffin-bone end the attack, it is only charity to terminate the existence. In Mr. W. Percival's admirable work the reader will find described at length a method proposed for restoring the bone to its original position. The author has seen that plan tried more than once, but never beheld any good result. The knacker has, in every case, been called in to finish the unsuccessful experiment.

The horse, however, which recovers from an attack of laminitis, either in the acute or subacute form, should ever after be shod with leather; and were this admirable practice universal, probably, by deadening concussion, it might altogether eradicate the disease. The expense is the objection to its adoption; but against the cost, the horse proprietor has to ask himself, What are a few shillings extra, at each shoeing, to secure immunity from that horrible disorder to which the servant of his pleasure is exposed?

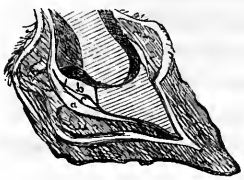
NAVICULAR DISEASE.

This is the scourge of willing horse-flesh; it is the disease from which favorite steeds mostly suffer; it is not less fatal in its termination than vexatious in its course and painful during its existence.

The malignancy of the disorder is expended upon the substances which in health are without feeling, but which occasion the most acute anguish when affected by disease—namely, bone, tendon, and synovial membrane. Strictly confined to these structures, and frequently limited to a space not half an inch in diameter, the suffering it occasions is such as often provokes the sacrifice of the life, and invariably renders the animal next to useless.

It is confined to the interior of the foot, being, as its name implies, strictly located upon the navicular bone. The navicular bone is a small bone attached to the posterior portion of the os pedis, and resting upon

the perforans tendon, which is inserted into the inferior surface of the coffin-bone. A synovial sac is placed between the navicular bone and superior surface of the tendon, on which the ossoeus structure reposes. Synovial sacs are only found in places where motion is great and almost incessant; thus the existence of this formation apprises us that the bone and tendon, in a healthy state, are designed to move freely upon each other. They do this while unaffected by disease; the foot, indeed, cannot be flexed, extended, retracted, or placed upon the ground without this busy little joint being put into motion. It is, perhaps, as essential a part—though of small size—as any of the larger structures which enter into the horse's body.



A DIAGRAM TO EXPLAIN THE SEAT OF NAVICULAR DISEASE.

a. The perforans tendon running beneath the bone, and on which the bone reposes.
b. The comparative size and relative situation of the navicular bone.
c. The synovial sac which facilitates the motion of the bone on the tendon; upon the superior surface of this sac navicular disease is alone exhibited.

Navicular disease, however, affects only the lower surface of the bone; the upper surface shares another synovial sac, which lubricates the articulation of the coffin-bone with the lower bone of the pastern. This upper surface is never affected; the navicular bone may diminish or wither through disease, still the affection remains confined to its original situation; disease may lead to fracture of the bone or to rupture of the perforans tendon, still the superior portion of the navicular bone to the last exhibits a healthful condition.

This most annoying and terrible disorder springs from two causes. The first was a very favorite crotchet of the late Professor Coleman, who was always theorizing to the injury of the animal it was his office to cure. The disease is now largely distributed through that gentleman's favorite maxim concerning the absolute necessity that there should be pressure upon the frog. Every smith thus instructed tried to bring the frog as near the ground as possible, and the consequence was the spread of navicular disease. It is true, the frog, in a state of nature, was designed to bear pressure; but surely it is folly to talk about the natural condition of the horse when nothing like a wild horse exists. Here was Coleman's error; he legislated for the most artificial of living creatures, which consumes only prepared food, and which moves only over laboriously manufactured roads, as if it had been in an undomesticated condition, gamboling upon the untilled earth.

The second cause is, the parsimony of most horse proprietors. Would these gentlemen have their favorites shod with leather, the smith would be obliged to slightly raise the frog; while the leather—if good, stout, sole leather—and the stopping would protect the seat of navicular dis-

ease from injury. With regard to the first cause, it was recognized by the late W. Percival, one of Coleman's most enthusiastic pupils; and, as concerns the last, its efficacy as a preventive needs no pleading nor any reference to establish its merits.

The horse, when attacked, commonly has a good open foot—in fact before disease commences, the foot is healthy. An animal in this condition is being ridden or slowly led out of the stable. In the last case it, being fresh, may rejoice to feel and sniff the cool air of heaven. It may prance about, and we may admire its attitudes; but in an instant it becomes dead lame. So a horse may be mounted by a kind master; the creature may be going its own pace, when, of a sudden, the movement shall change, and the rider will be made conscious that his steed is lame.

In either case the foot is examined. It is cool, quite cool; no stone appears to have injured it—nor is any pebble sticking between the web of the shoe and the sole. Yet the lameness is acute and does not pass off. Now, to explain this, let the reader turn to the illustration which was last presented.

The portion of the foot, immediately under the navicular bone, has been placed upon a stone; the stone has been forced against the foot by the immense weight of the horse imposed upon it. The stone, under this impulse, has bruised the navicular bone. But the fleshy frog and the perforans tendon would have to be passed before this effect could reach the bone. Are neither of these also hurt? Doubtless they are. But the fleshy frog is a highly organized, secretive organ, and probably, by its innate energy, soon recovers from the effect. The tendon is, on the contrary, too soft and yielding to retain any harsh impression. The bone is firm and solid; and thus that which failed to act upon either of the intervening parts, leaves a lasting injury upon the osseous structure, which, moreover, is held stationary by the coronary bone, and which is disposed to display injury, being covered by synovial membrane.

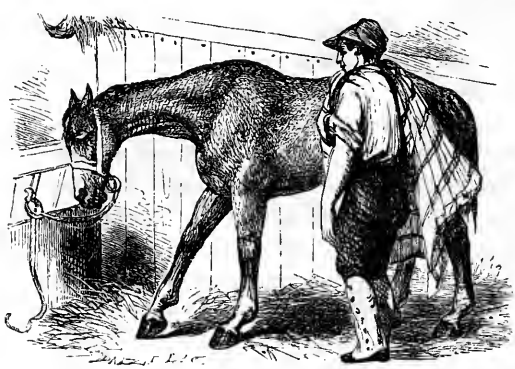
The navicular bone belongs to a peculiar class called "sesimoid, or floating bones." These are more highly organized than the generality of osseous structures—in short, quite as much, or rather more, than the human tooth. Everybody must be acquainted with the anguish occasioned by unexpectedly biting upon a hard substance. The tooth, however, is coated with crystalline enamel. The bone is covered by delicate synovial membrane. The impression is, therefore, more likely to be lasting with the last than the first.

After the expiration of a week, however, the lameness disappears, and the proprietor fondly hopes all is over. The animal may work soundly for months—sometimes it never fails again. Generally, however, after

some period, extending from six to nine months, the lameness reappears. This time the treatment occupies a longer space; and the subsequent soundness is of shorter duration. Thus the malady progresses; the period occupied in curative measures lengthens, while the season of usefulness diminishes; till, in the end, the horse becomes lame for life.

The worst of it is, that the pain in the lame foot occasions greater stress to be thrown upon the sound member; the result generally is that both legs ultimately become affected with the like disease: such is ordinarily the case. The horse with a tender foot will always bring it gently to the earth; but this circumstance obliges the animal to cast the other foot to the ground with heedless impetuosity. The consequence is, the sound foot is sooner or later forced upon some stone or other inequality; from the law of sympathy, the disease subsequently makes rapid strides; for at death both feet are usually found in a similar condition.

The effect of these repeated attacks is soon shown. The anguish has been likened to toothache, only it must assuredly be a toothache twenty



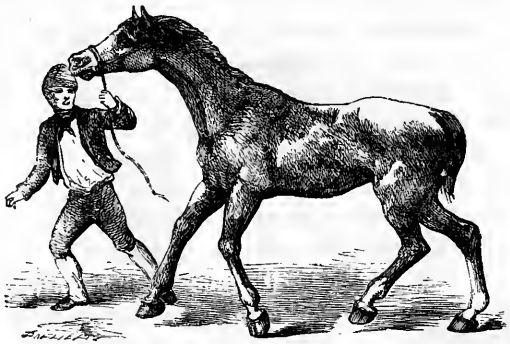
A HORSE, WITH NAVICULAR DISEASE, POINTING IN THE STABLE.

times magnified. All people know "there never yet was philosopher who could withstand the toothache;" but think of the poor horse with twenty toothaches compressed into one agony! The man can seek a thousand changes to divert his suffering; the simple horse cannot even drink intoxicating fluids, and has hitherto not learned to smoke. The suffering, therefore, continues. And as man strives to spare a decayed tooth by masticating on the other side of the mouth, the horse endeavors to ease an aching foot by leaning all its weight upon a sound limb. Thus it learns to point in the stable or to advance one leg beyond the center of gravity, leaving the healthy member to support the entire weight of the body.

A foot thrown out of use decreases in size. Nature has given certain parts for certain purposes; and if these purposes are avoided, those parts diminish in bulk. Wear the arm in a sling for any extended period, and the arm will sensibly grow smaller, or become withered. So the horse's foot, spared in progression and pointed in the stable, obviously changes its shape. The quarters draw inward; the heels narrow; the frog hardens and decreases; the sole thickens and heightens; the crust becomes marked by rims and grows considerably higher. In fact, the foot, from being an open, healthy foot, becomes a strong, contracted, or diseased member.

THE UPRIGHT PASTERN AND HARD, UNYIELDING HOOF, INDICATIVE OF CONFIRMED NAVICULAR DISEASE.

The effect of the disease is speedily shown by the animal progressing entirely upon the toe, whereby the front of the shoe becomes much worn, as shown in the following engraving. Indeed, it is not unusual to see shoes taken from horses having navicular disease with their front edges worn positively to a cutting sharpness. When the animal is in

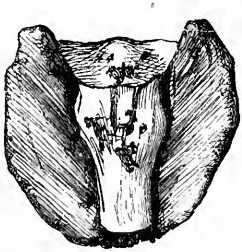


THE TROT, PECULIAR TO NAVICULAR DISEASE, GENERALLY TERMED GROGGINESS.

this stage, the mode of progression is usually what is termed groggy—that is, the hind feet, which are never affected, step out as boldly as ever; but the fore feet are limited in their action. They cannot be advanced far, because extension causes the perforans tendon to press upon the navicular bone; the leg cannot be bent, because flexion moves the perforans tendon upon the navicular bone. The animal, thus doubly disabled, endeavors to make up by quickened movement for that which it lacks in perfect action. It dare not bring the heel to the ground or take long steps. It therefore progresses upon the toes, and indulges in very short but quick movements of the fore feet; and a horse thus affected may be challenged, though unseen, by the "*patter, patter! clatter, clatter!*" which it makes.

Navicular disease appears to the author to have been entirely mistaken as regards its treatment. It is administered to as though it consisted in violent and acute inflammation, whereas it is caused by a different process—namely, ulceration. Inflammation excites the whole system, and occurs in strong bodies: ulceration is a diseased condition peculiar to the aged and to the weakly. Navicular disease is, so far as the writer's knowledge extends, unknown in the unbroken animal. It mostly affects the adult or the aged. It is not inflammatory; for the foot, in the first instance, exhibits no heat, and, in the after-stages, never becomes more than warm. Often the warmth is so very slight that practitioners have to adopt a kind of stratagem to determine which is the more hot of the fore feet. A pail of water is brought forward, and sufficient to thoroughly wet both hoofs is thrown over the feet. The parts are then watched; and that which becomes dry the sooner is reasonably considered the warmer hoof of the two.

Moreover, the consequences of this disease are absorption, which it takes years to effect—not deposition, which is accomplished in a few days. The bone lessens in size, sometimes grows thin, till ultimately it may fracture; the tendon loses in substance, and its fibers separate, till at length they may rupture. All internal structures which enter into the composition of the foot grow less and less, till the hoof becomes obviously small or contracted; for it is a law of nature that, in the living creature, the contents should govern the covering: thus the brain controls the skull, the lungs regulate the chest, etc. etc. The horn alone increases; but it is a curious fact that Nature always endeavors to protect the part she allows to suffer from disease: thus in rickets, with children, the bones of the legs frequently curve; but Nature, true to her principles, strives, by extra deposition, to strengthen the parts which threaten to break through weakness.



A MORBID PREPARATION, KINDLY LENT TO THE AUTHOR BY T. W. GOWING, ESQ.

The diseased surface of the navicular bone exposed, and the affected tendon turned back upon the lower part of the os pedis.

All tokens declare the navicular disease to be a chronic affection, attended by symptoms of bodily weakness. The accompanying example of the disorder, taken from the body of a horse which was killed for incurable lameness, will illustrate fully this fact.

In this specimen, the navicular bone occupies its natural situation between the wings of the os pedis. That portion of the tendon which once shared and concealed the disease is turned back upon the sole of the coffin-bone. What does the inspection disclose? Three small holes within the bone, and a few stains of blood,

which denote irritation upon the tendon. For, as the disease progresses, synovia ceases to be secreted, the navicular joint becomes dry, and is subject to the most torturing irritation every time the leg is moved.

That the one presented may not by the reader be supposed an extreme case, produced to support the writer's opinions, another specimen of the disease is given; but, on this last occasion, both sides of the navicular bone shall be exhibited. The upper surface appears perfectly healthy; the lower surface only displays a large clot of blood, and a small but comparatively a deep hole.

THE SUPERIOR SURFACE OF THE NAVICULAR BONE.

THE INFERIOR SURFACE OF THE SAME BONE.

Supposing the reader to be convinced of the justness of the writer's views, the treatment which these recommend shall be stated. Ulceration in any form proves the body to be weak or exhausted. Feed liberally, chiefly upon crushed oats and old beans. Attend to any little matter in which the horse's body may be wrong; but do little to the foot beyond, every other night, soaking it one hour in hot water, for the first fortnight. Afterward apply flannel bandages to the leg, put tips upon the hoofs, and wrap the feet up in a sponge boot, having first smeared the horn with glycerin. This, with a very long rest, is all it is in our power to accomplish. The rest, however, should be proportioned only to the proprietor's pocket or to his powers of endurance. In the first instance, six months' rest in a well-aired stable, and three subsequent months at slow agricultural employment, will not be thrown away, but will be likely to prevent future annoyances. After one relapse, the treatment is all but hopeless. The horse may be again restored to soundness; but the disease, which has with time gained strength, will be all but certain to reappear.

This, probably, may be the fittest place for stating the writer's reason for objecting to the treatment generally adopted.

Bleeding from the toe is decidedly objected to, because there never are any signs of inflammation present, but rather those symptoms which favor the belief that too little blood circulates within the foot. Blistering the coronet is more likely to augment the crusts than to reach the disease; and the tendency of navicular derangement is to thicken the horn. The same reasoning applies to paring out the foot and placing the hoof in poultices; it is more likely to act upon, and lead to activity in, the secreting membrane, which is near the surface, than to operate

beneficially upon a remote joint. Objection is taken to the feet standing in clay, because the cold produced by evaporation is disposed to drive blood from the parts, which already have too little.

In extreme cases, neurotomy, or division of the nerve, is the only resort. For a detailed account of that operation the reader is referred to the next chapter. It permits the horse to be of some service to the master, and allows the animal an escape from the agonies of a cruel disease; it is, however, not final. It conceals the lameness; it rarely cures the disorder. The internal ravages may still go on; and, though the nerve of the leg has been properly divided, yet at an uncertain period nerves generally reunite, and the part which was deprived of sensation may become once more sensitive to pain. Moreover, no eye can look upon the internal ravage. Sensation destroyed in a foot tempts the horse to throw even more than its proportion of weight on a part weakened by disease. The bone has fractured, or the tendon has ruptured, under too sudden a test of their integrity.

For the above reasons, neurotomy is always most successful when early performed. In the primary state of the disorder, a restoration of the foot to its healthy functions has seemed to banish the affection. Pressure being given to the neurotomized organ, health has occasionally returned; and when the time has arrived for the reunion of the nerve, that event has been signalized by no reappearance of lameness.

But when the disorder has continued so long as to weaken the structures of the foot, operation is always attended with hazard. The nerve may be properly divided; the operation shall be admirably performed; still the parts, weakened by the joint actions of active disease and of long rest, have become disorganized. Pressure being suddenly restored, the debilitated structures could not sustain the restoration of that burden they were originally formed to endure. Rupture or fracture was the result; and the veterinary surgeon, despite his admirable talent, is disgraced by being obliged to order the immediate destruction of that animal which it was intended he should have benefited.

For the above reasons, and because the sound member is always disposed to exhibit the disorder which incapacitates one foot, never delay adopting the only chance of certain relief. If from pecuniary motives, or from better but mistaken feelings, the proprietor hesitates to subject his dumb companion to the surgeon's knife, never afterward should he repent of such a resolve. With delay the opportunity of benefit has passed; the operation, to be successful, should be resorted to upon the second appearance of acute and decided lameness.

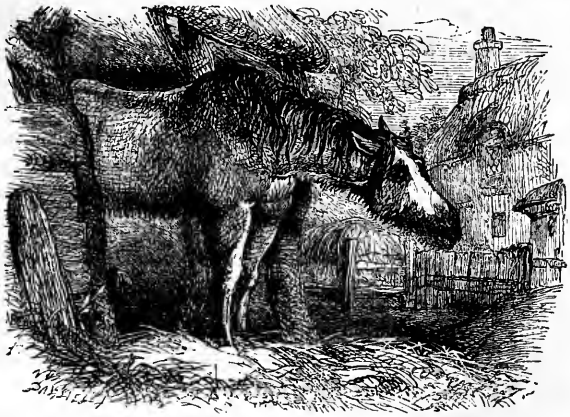
CHAPTER XIV.

INJURIES—THEIR NATURE AND THEIR TREATMENT.

POLL EVIL.

Poll evil consists of a deep abscess, ending in an ulcerous sore which has numerous sinuses. The situation of the affection is the most forward portion of the neck, near the top of the head, which part is peculiarly liable to injury, especially in agricultural horses.

The gentlemen who superintend the laying down of stable floors always make the pavements of the stalls to slant from the manger to the gang-



THE POSITION OF THE HEAD BEFORE AN ENLARGEMENT ANNOUNCES THE EXISTENCE OF AN ABSCESS ON THE POLL.

way. They either know nothing about the habits of the horse, or they disdain to think about so trivial a matter as the convenience of an animal. Their stables are built for men; and it is sufficient if the places will hold whatsoever man chooses to put into such out-buildings.

The horse is most at ease when the position takes the strain off the flexor tendons. That end is accomplished when the hind legs are the higher portion of the body, or when the ground slants in precisely the opposite direction to which the flooring of all present stables incline. The animal, finding the slope which is most convenient for the builder's purposes adverse to its comfort, endeavors to compound the matter by

hanging back upon the halter, thus getting the hind feet into the open drain which always divides the stalls from the gangway.

The rope should be stout which has to sustain the huge weight of the horse; in proportion to that weight, of course, must be the pressure upon the seat of poll evil. Pressure, as a natural consequence, stops circulation. Upon circulation being freely performed, health, secretion, and even life itself is dependent. The flow of blood to any part of the body cannot be long prevented without unpleasant sensations being engendered. Numbness and itching are the first results. The horse tries to master these by rubbing its head violently against the trevise or division of the stall. Friction, when applied to an irritable place, is never a soothing process; when instituted by the huge strength of a horse, its probable ill effects may be easily surmised. It is, therefore, no legitimate cause for wonder if some of the fleshy substances, compressed between the external wood and the internal bones of the neck, become bruised, and deep-seated abscess is thus provoked.

This, however, is not the sole cause; there are others equally potent and generally springing from the same source—namely, from human folly. How much of animal agony might be spared if man, in the pride of superiority, would deign to waste an occasional thought upon the poor creatures which are born and live in this country only by his permission and to labor in his service! Stable doors are commonly made as though none but human beings had to pass through them. The tallest of mankind, probably, might enter a stable without stooping; but does it therefore follow that a horse can pass under the beam without assuming a crouching position? Many horses learn to fear the doorway. They shy, rear, or prance, whenever led toward it. Man, however, refuses to be instructed by the action of his mute servant; those symptoms of fear, which are the bitter fruits of experience, are attributed to the patient and enduring quadruped as exhibitions of the rankest vice.

Low doors, such as usually belong to stables, are among the most frequent causes of poll evil. The horse, when passing through them, is either surprised by something it beholds outside the building, or checked by the voice of the groom. The sudden elevation of the head is, in the animal, expressive of every unexpected emotion. Up goes the crest and crash comes the poll against the beam of the doorway. A violent bruise is thereby provoked, and a deep-seated abscess is the sad result.

The horse likewise suffers from the representatives in brutality of him for whose benefit it wears out its existence. Carters display their ignorance by getting into violent passions with their teams. "Whooay" and "kum hup" are shouted out; the huge whip is slashed and snaffle

jagged, till mute intelligence is fairly puzzled. Were mortals in the like position, subject to the same terrible chastisement, and, at the same time, forbid to inquire the wishes of their commander, they would be in no better condition. The panting, sweating, and starting of the poor, confused quadrupeds announce their terror. The driver, too enraged to understand himself, and too impatient to delay punishment upon the objects of his wrath, resorts to the butt-end of his heavy whip. Some wretched animal is struck upon the poll, for the head is always aimed at when stupidity quarrels with its own ignorance, and a dreadful disorder is established.

All the causes of poll evil may, however, be reduced to one—namely, to external injury. The first result of such a cause is pain whenever the head is moved. Motion enforces the contraction of the bruised muscles; and the agony growing more and more acute, the sufferer acquires a habit of protruding the nose in a very characteristic manner long before the slightest symptom of the malady can be perceived. When forced to bend the head toward the manger, it generally hangs back to the length of the halter; for although so doing occasions pain, the position renders the necessary angle of the head upon the neck as little acute as possible. The anguish attendant upon the earlier stages of the disease is exemplified by the length of time occupied in emptying the manger. At this stage nothing is apparent; at this period also great cruelty is too often exercised when the collar is forced over the head regardless of the struggles of the acutely-diseased animal.

Should the seat of poll evil at this stage of the disease be particularly examined, the most lengthened inspection, when prompted by expectation, may fail to detect even an indication of probable enlargement. Pressure, or enforced motion of the head, excites resistance. A few weeks in some cases, and the swelling becomes marked or prominent. In others, the enlargement is never well developed: instances of this last kind invariably are the most difficult to treat, for in them the seat of the disorder is always most deeply seated. The size of the tumor is therefore always to be hailed as a promise that the injury is tolerably near the surface, and, consequently, more under the influence of remedial measures.

After pressure has been made, the agony occasioned causes the animal to be difficult of approach. The common method of examination is, however, very wrong. No good is done by inflicting torture. Something, on the contrary, is concealed. Place the fingers lightly on the part, and allow them to remain there till the fear, excited by a touch upon a tender place, has subsided. Then, and not till then, gradually introduce pressure. The more superficial the injury, the more speedy

will be the response. The longer the time and greater the force requisite to induce signs of uneasiness, the deeper, as a general rule, will be the center of the disease.

In either case there is little good accomplished by those applications which are recognized as mild measures. Fomentations and poultices commonly waste valuable time, and, at last, prove of no avail. Therefore, blister over the place. Obviously, the employment of more active treatment is at present forbidden. Do not, however, give the carter so much liquid blister, to be rubbed in by his heavy and coarse hand; but lightly paint over the seat of the supposed hurt with spirituous or acetous tincture of cantharides. Do this daily till copious irritation is produced, and, before that dies away, repeat the dressing. Keep up the soreness, but do no more. Never apply the tincture upon active vesication, otherwise a foul sore, ending in a lasting blemish, may be the result. Make the poll merely painful. An additional motive will thereby be instituted to keep the head perfectly quiet, for constant motion provokes the worst consequences of poll evil, causing the confined pus to burrow, or to form sinuses.

The foregoing treatment has been proposed because the tincture, when applied by means of a brush, penetrates the hair more quickly, acts quite as energetically, and is less likely to run down upon other parts than the oil of cantharides, which the heat of the body always renders more liquid. It is advised to be used, because it establishes an external inflammation. Inflammations in living bodies, like fires preying upon inanimate substances, have an attraction for each other. All injuries which lead to suppuration likewise have a tendency to move toward the surface; and these two laws, acting together, very probably may tend to the speedier development of poll evil, thereby shortening the sufferings of the animal. Should they not have that effect, the vesicatory is beneficial. About the head of the horse are numerous layers of thin tendon, which are termed fascia. Through this substance matter absorbs its way with difficulty. It is, therefore, almost imprisoned, and motion always disposes the pus to seek new outlets. Thus pipes or sinuses are formed; these constitute one of the worst symptoms attendant upon poll evil.

POLL EVIL DURING THE FIRST STAGE.

As soon as the swelling appears, watch it attentively. Wait till

some particular spot points, or till it feels softer, if it be not more prominent than the surrounding substance. Then have the animal cast. Being down, take a keen knife and open the spot before indicated. That being accomplished, pause while the secretion flows forth. Afterward insert into the cut a small, flexible probe. When its progress is impeded, employ the knife with a director. Continue doing this till the seat or center of the disease has been gained.

Remember, however, you are not hacking at the family loaf; it is living and sensitive flesh you are wounding. Therefore, be very careful your knife is thoroughly sharpened, and is of sufficient size; mind, also, that all the cuts run smoothly into one another, so as to leave clean surfaces for the healing process to unite. Having reached the heart of the disorder, proceed to empty out all the concrete matter. That done, wash out the part with a syringe and the coldest spring water. Afterward examine the cavity. Excise any loose pieces of tendon or of ligament, and cut until a healthy aspect is everywhere presented. Then rub the sides of the deep-seated wound with lunar caustic. Let the horse rise, giving orders that the sore is to be thoroughly moistened thrice daily with the solution of the chloride of zinc, one grain to the ounce of water, and, placing a rag dipped in a solution of tar over the wound to keep off the flies, return the horse to the stable.

If the disease be left to run its course, the swelling generally increases, while numerous openings at last disfigure the enlargement. From such drain a glairy discharge. This adheres to the surrounding parts, and, joined to the miserable expression of the countenance, gives to the horse a peculiarly unpleasant appearance. The flesh wastes under the perpetual anguish, and the half-conscious aspect of the creature justifies a suspicion that the brain is affected.

In that case, proceed as before directed concerning casting the horse and the knife with which you operate. Have the blade rather too large than too small. Most veterinary instruments are mere adaptations of those employed by the human surgeon. The author never remembers to have seen anything approaching to the magnitude of a proper horses operating knife in the hands of his fellows. A small blade compels numerous small cuts. The part is rather snipped asunder than divided by one clean incision. The recovery is thereby materially delayed; and the lengthened operation greatly deteriorates from its chances of success, not to dwell upon the increased suffering occasioned to the quadruped.

The horse being down, do not attempt any display of your proficiency. Look well and long at the part intended to be operated upon. Decide in your own mind the course in which the knife is to move. That course should be influenced by the direction in which you may probably sepa-

rate the greater number of sinuses. In the engraving inserted below there are four holes, each indicating the presence of a sinus. The supposed direction of the knife is laid down by dotted lines. The primary and lower incision includes three of the pipes. That made, another connects the other sinus with the longer incision; the after-labor necessitates the cleaning of the central sac, removing all the hanging pieces, also probing the sinuses, and making sure all are fairly opened. If any are found unopened, a director should be inserted, and the channel should be connected with the chief wound by means of a smaller knife.

POLL EVIL IN ITS SECOND STAGE, OR WHEN READY FOR OPERATION.

Two cautions are necessary to be given with regard to the treatment of poll evil: Never permit the knife to be applied upon the root of the mane. Underneath the hair which decorates the neck of the horse lies an important ligament, by means of which the head is chiefly supported. All the evils which might be anticipated may not spring from the division of that development; but it is well to spare it, although the prostrate animal should have to be turned over, and the operation have to be continued on the other side. Also, when working the creature subsequent to its recovery, never use a collar. Wounds, although perfectly healed, are apt to remain morbidly sensitive; serious accidents, over which the reader would deeply grieve, may occur from the harness touching the part which once was diseased. A breast strap is, therefore, to be much preferred.

There are several popular methods of treating this disease. All, however, are cruel; one is barbarous; when properly conducted, none are efficient under the direction of a person possessing the smallest feeling. The injection of potent caustics in solution, or violent compression upon an exquisitely tender swelling even until the force employed amounts to that power which can bring the sides of a distant internal cavity together, drive out the corruption, and hold the part in that position while healing is established, have been largely advocated. Whoever could increase the suffering of a mute and patient life to that degree which the last method necessitates would merit a much severer punishment than the writer can afford space to detail. Of these modes of cure the author can profess no experience. He has, however, seen injections used; in no instance have they been successful. The time which they occupied was enormous, and the expense with which they were attended by no

means small. The man who hopes to eradicate this disease should never have recourse to them.

Another process, formerly very popular, consisted in slicing the living flesh in a very coarse and vulgar manner; that, however, was merely preparatory. The chief dependence was placed in boiling liquor, which was inhumanly poured into the wounds. After such a method were all sinuous sores treated by an ignorant and uneducated quack, who especially delighted in eradicating such forms of disease. The writer has heard terrible descriptions given of the agony produced, and equally revolting has been the picture of the filth employed by this unqualified horse doctor. While, however, the course which has been mentioned is reprobated, our heaviest condemnation should alight upon those persons who could so violate the sacredness of their trusts as to surrender any creature to the torments of so horrible a remedy.

In poll evil, the only certainty reposes on the knife. When properly employed, the operation is brief; the temporary agony bears no proportion to the years of subsequent relief thereby secured. To be properly employed, however, it should be used as though the person invested with it was, for the time, divested of all feeling. He who accepts it must think only upon what he is about to perform, and must summon resolution to do it quickly. In surgery, hesitation is positive cruelty; the knife, to be curative, should be gracefully moved through the living flesh. All notching and hacking are tortures, and worse than folly; the blade should sweep through the substance; and, to prevent the struggles of the quadruped from interfering with the intentions of the surgeon, all that will be necessary is for some person to sit upon the cheek of the prostrated animal.

FISTULOUS WITHERS.

This disease, in its chief characteristics, closely resembles poll evil. It, however, differs from that disorder in one fortunate particular; poll evil must come to maturity before its cure can be attempted with any hope of success. Injury to the **withers** is easiest eradicated when attacked upon its earliest appearance; both, however, in their worst periods, proceed from pus being confined, from it decomposing and its establishing numerous sinuses. When disease has reached this stage, the only certain cure is the free but skillful use of the knife.

Fistulous withers, in the first instance, is an injury to one of the superficial bursæ which nature has provided to facilitate the movement of the vertebral, points spinal under the skin. The hurt is occasioned by badly-made saddles, but more especially by the ladies' saddles. Some fair equestrians delight to feel their bodies lifted into the air, and

enjoy the trivial shock of the descent; such movements, however, necessitate the weight should be leaned upon the crutch and stirrup. This kind of exercise is never indulged in by good female riders, as no saddle, however well constructed, can resist the constant strain to one side. Friction is produced; a bursa is irritated, and the animal will, under the best treatment, be rendered useless for a fortnight. Rolling in the stalls is also reported to have occasioned this affection; so likewise is the heavy hammer of the shoeing smith, intemperately employed to chastise the transient movement of an observant horse.

When first produced, the remedy is certain and easy. A swelling about the size of an egg appears near the withers, upon the off side of the body. Go up to the horse upon that side; have with you a keen-edged and sharply-pointed knife of pocket dimensions. Stand close to the animal; then impale the tumor, and, having the back of the blade toward the quadruped, cut quickly upward and outward. Mind, and stand very close to the center of the body, as the pain of this trivial operation is apt to make the creature lash out and prance. At the spot indicated a person is perfectly safe; neither hoof nor leg will touch that particular place, or even come near it. Rest one hand on the back, and by your voice reassure the startled creature.

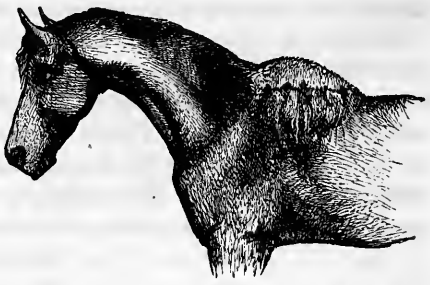
THE SLIGHT ENLARGEMENT WHICH, BADLY TREATED OR UNATTENDED TO, MAY END IN FISTULOUS WITHERS.

The swelling being divided, exchange the knife for a lunar caustic case; smear over the interior well with the cautery, and all the business is over. Never, however, attempt to pass by the heels of a steed which has been pained. The animal may suspect your motives, and the hind feet of the horse are the most powerful weapons of offense and of defense. Have the creature backed from the stall ere you attempt to quit it. Subsequently keep the wound moist with the lotion composed of chloride of zinc—one grain to the ounce of water; also have the part covered with a rag, moistened with solution of tar. In nine or ten days the incision will have healed, and after the lapse of a fortnight the animal may return to its ordinary employment.

Should this remedy be neglected, pus is soon formed within the enlargement, and the formation is accompanied by swelling, heat, and pain. The horse is useless, and continues thus till the affection is

eradicated. The animal cannot wear a collar; it cannot endure a saddle; at length numerous holes are formed upon the enlargement. These are the mouths of so many sinuses, and from each exudes a foul discharge. The poor quadruped evidently suffers greatly; it will almost stand still and starve rather than brave agony by violent motion.

The only remedy is by operation; make an incision so as to embrace the greatest number of holes. Then cut from the other openings into the main channel; this done, have the sides of the wound held back, while the center of corruption is cleaned out. Such is a very filthy and unpleasant office; if the bones are affected, all the diseased parts must be removed. When slight, the tainted portions may be scraped away; when of long standing, the spines of the vertebræ have been sundered with the saw and thus taken from the body. At any risk, none but healthy bone must be suffered to remain; all discolored or white portions of the bony structure must be extirpated, and none but that which is of a healthy pink color suffered to continue. If a particle of unhealthy, osseous growth is left behind, the wound may close, but it will break out again, and the disease become as bad as ever.



A HORSE WITH FISTULOUS WITHERS IN THE WORST STAGE.

The cleansing being accomplished, apply the cloth over the wound, and keep wet with the lotion formerly directed to be used.

Sometimes the sinuses will take a dangerous direction, and, favored by the action of the shoulder, will burrow from the withers to the chest or elbow. Then the knife cannot be employed. Should a pipe incline to this course, but be of comparatively short extent, insert a little bichloride of mercury down the channel. This is best done by powdering some of the salt. Dip the elastic probe, which has recently been down the sinus, into the powder. Reinsert it, and continue to repeat this action till all the bichloride is expended.

If the sinus should have run its entire course, but not have found an exit below, then employ a long guarded seton needle, such as can be purchased at all veterinary instrument makers. Insert this in its guarded state, and, having pushed it as far as it will go, give, upon the end of the handle, a moderately sharp blow; this will force out the cutting edge and drive the point through the flesh. Pass a long tape,

with a knot at the further end of it, through the opening near the point, and withdraw the instrument, leaving the tape in after another knot has been tied at the other extremity.

Thus a seton is established, and a depending orifice is instituted. The tape will act as a drain to the morbid secretion, while the irritation produced by it will also remove the callous lining of the pipe. A healthy action will thereby be established; and so soon as the inferior wound discharges a full stream of thick, creamy pus, the seton may be cut out, with a conviction that its office is fulfilled.

A GUARDED SETON NEEDLE.

THE SETON NEEDLE PROTRUDED, AND SECURED WITHIN THE HANDLE BY MEANS OF A SCREW.

The screw being loosened, the button is struck, and the sharp needle shoots forward, cutting its way through any interposing obstacle.

However, never turn animals afflicted with fistulous withers or with poll evil out to grass. In the last disease, the motion of the head, the outstretching of the neck, and movement of the jaws occasion agony; and in the first instance, the necessity for perpetual action entails so much misery as soon renders the life worthless. The horse which is not worth the best of food in the best of stables, should not be doomed to a life of starvation and of torture. It is the shame of society that rich men are tempted by a few pounds to dispose of the creature which has been maimed in their service. Wounds endured when obeying the wishes of the master should endear the slave unto his lord. In the case of the willing steed, the law is reversed. The owner blemishes; and instead of nursing the wounded life, he disposes of it. The injured animal is sold to the first purchaser for so much as the damaged article will fetch.

FISTULOUS PAROTID DUCT.

This is a most serious evil, rather than a quickly-killing disease. The animal which is thus afflicted may endure for years; but each meal consumed and each day survived rates as a period of misery. When it is considered how much the happiness of the lower order of beings depends on merely feeding and living, it will be at once apparent how much the horse has lost when all enjoyment has departed from eating; when mere existence is embittered by being a prolongation of the suffering. The digestion becomes deranged, because the saliva, or a

valuable secretion imperative to the proper performance of the function, is absent; while every movement is a pain occasioned by the agony of a diseased stomach and the anguish attendant upon a fistulous sore. The wretched creature, in this condition, speedily becomes an object of disgust to the most humane master; and, according to the convenient morality of modern times, is therefore sold to the highest bidder. Purchased only for the work which remains in the carcass, a fearful doom lies before the sick and debilitated quadruped. It rapidly sinks lower and lower, at each stage of its descent the food growing more scanty as the labor becomes more exhausting.

The **parotid duct** is the tube by which the saliva secreted by the gland is, during the act of mastication, conveyed into the mouth and mingled with the food. The parotid gland lies at the spot where the neck joins the jaw; within the interior of that body numerous fine hollow vessels connect and unite. These at each junction become larger and fewer in number, till at length they all terminate in one channel, which is the duct immediately about to be considered. It leaves the gland and travels for some space upon the inner side of the jaw; after which it curls under the inferior border of the bone and runs in front of the large masseter muscle of the horse's cheek.

Its injury is frequently occasioned by hay-seeds or particles of food, during the process of comminution, entering the open mouth of the duct; these, subsequently becoming swollen, prevent the free egress of the saliva. The secretion, nevertheless, goes forward and accumulates within the tube, which it greatly distends. A confined secretion produces the most exquisite agony. The motion of the jaw stimulates the gland to pour forth its fluid; thus every mouthful which the animal is forced to eat not only is the cause of suffering, but likewise occasions additional pressure to a channel already enlarged to bursting, and which at length bursts.

THE PAROTID DUCT DISTENDED BY A SALIVARY CALCULUS.

Another provocative is calculus, or stone, which is sometimes taken from the cheeks of horses, they being of enormous comparative magnitude; the natural tube would not admit a pea. Concretions have been removed from this narrow passage as large as a pullet's egg. Such an obstacle not only impedes the flow of saliva, but produces additional anguish by the distention it occasions, and by the hinderance so hard a substance offers to every motion of the animal jaw during the necessary period of mastication.

Every puncture made into the substance of the duct, and every rupture of the canal, speedily becomes fistulous sores. The saliva constantly pours through the opening thus instituted; the healing process is thereby prevented, and the edges of the wound rapidly become callous. It is, however, painful to be obliged to state that the stable fork, in the hand of an intemperate groom, is the instrument by which these punctures are too frequently occasioned.

Gentlemen when engaging people to attend upon their animals should always be very particular concerning temper. An irritable person, however smart he may appear, is obviously disqualified for such an occupation. A man of an evil temper should never be engaged. Still, the great majority of present grooms are rather conspicuous for an exuberance of conceit, than remarkable for any openness of countenance. Smartness may gratify the pride of the master; but it is difficult to comprehend in what manner it possibly can benefit his horse.

There is an old proverb which, being "the condensed wisdom of ages," teaches that "the master's eye fattens the steed." Most of modern masters dislike nothing so much as trouble. The stable is given over to the servant. No Eastern despot is so absolute as the groom in his dominions: he kicks and abuses its inhabitants at his pleasure. If the free exercise of his will occasions injury, a lie is easily invented and readily believed by the lazy superior. All that comes into or passes out of the building pays toll to the invested ruler. Five per cent. is levied upon the hay and corn merchant; the dung is sold as a legitimate perquisite; the bills of the harness and the coach makers are taxed one shilling in the pound by the most ignorant groom, and often much higher by the properly initiated. Thus the idle man pays dearly for his ease. There is no luxury so expensive as a want of wholesome energy.

A HORSE, HAVING A FISTULOUS PAROTID DUCT, IN THE ACT OF EATING.

The process of mastication causes the saliva to be secreted. At each motion of the jaw it is squirted forth with violence; every drop of the fluid passes through the false opening—no portion finds its way into the mouth. The running of the stream down the cheek wears away the hair, while the absence of a valuable constituent toward perfect digestion occasions the diet not to nourish the body. The animal loses flesh, and quickly assumes a miserable appearance, which makes the proprietor long to rid his sight of so pitiable an object.

The cure for this disease was aptly illustrated by Mr. Gowing, the excellent veterinary surgeon of Camden Town. That gentleman made an adhesive fluid, by either saturating the strongest spirit of wine with gum mastic, or dissolving India-rubber in sulphuric ether. Then, when the horse was not eating, he pared off the hardened edges of the wound till blood issued therefrom. He subsequently allowed the bleeding to stop, and placed over the orifice a piece of strained India-rubber. Over that he put a thin layer of cotton; fastened one end of the cotton to the hair of the cheek by means of the adhesive preparation. That being dry, he tightened the cotton and glued down the opposite extremity. Next he attached another layer of cotton, and subsequently another. Afterward he fastened more cotton, some of it crossways; and, having added as many layers as would make a good body, saturates the whole with the adhesive solution before alluded to.

The hair affords a good ground to which any other substance can be fastened; but it is rendered better by being thoroughly washed with soft soap and warm water. The ablution deprives the skin of the horse of its naturally unctuous secretion, and permits the adhesive application a better chance.

The horse should be allowed no food which necessitates mastication. The head should be fastened to the pillar-reins during the process of cure. Thin gruel only should be presented while treatment is progressing, and that should be continued until the covering falls off. Should the wound not be healed, allow a couple of days to elapse; but give no solid food. Permit the horse to rest on refuse tan—not straw, which might be eaten—during all this time. Afterward renew the attempt, and repeat it again if necessary—though the first trial generally succeeds.

Before concluding, it may be well to arm the reader against those practices generally adopted by horse doctors. These practices consist in the use of the red-hot budding iron, which is among them a very popular application to a **fistulous parotid duct.** The theory which induces this resort is, a belief that the heated iron induces an eschar, and the wound closes before the crust falls off. Red-hot iron is, however, far more disposed to destroy substance than to favor growth; and, probably, its curative properties could have gained faith among no other class. Possibly there exists no other body which would credit that, to burn a hole larger, was the best way to close it. Another artifice is to inject caustic lotions up the duct, and thereby occasion the gland to slough out. Against such cruelty the author is pleased to think little need be said. The operation, when successful, causes so much irritation as endangers the life; for the body of the gland is permeated by so

many and such important vessels as render the termination always very dubious.

PHLEBITIS, OR INFLAMMATION OF THE VEIN.

Formerly it was the custom to bleed horses for everything and for nothing. It was not even suspected that a creature which exists only to labor unto the limit of possibility is far more likely to be the victim of debility than of repletion. It never occurred to any master that his wretched animal wanted blood putting into it rather than abstracting the smallest quantity of blood from it. However, formerly bleeding was a favorite resort with the apothecary, and the old veterinary surgeon seems to have followed the bad example. Aged people have informed the writer that they remember the time when, on a Sunday morning, a long shed was filled with agricultural horses standing in a row. These victims were all waiting to be bled. The veterinary surgeon's assistant used to take the fleam, and to open a vein in the first animal's neck. Then he would proceed to the second; and thus, in turn, he would open the jugulars of the entire number. No account was taken of the quantity of blood lost; that flowed forth till the last had been operated upon, when all the creatures stood simultaneously draining forth their lives.

The veterinary surgeon's assistant subsequently returned, and pinned up the orifice of the first horse; then he went and performed that office for the succeeding animal. Thus he, a second time, progressed down the row, pinning up as he proceeded; and the poor horses often tottered before he came. All this was done for a human fancy: man thought the loss of blood, at spring and autumn, beneficial to all kinds of life. The writer has heard of old ladies who were very skillful in bleeding cats. Most cats, however, resist such an application of medical talent; not so the horse: this animal submits itself patiently to the master's will. The creature seems to recognize that it has no right to exist except by the permission of its owner. There is no living being which acknowledges so abject a dependence.

In return it is made a sport of the idlest whims. Hence horses, after bleeding, were all thought to be much benefited. They were expected to perform greater labor and to continue in sounder health. In vain did the disease visit the stable more frequently; to no purpose was diminished capability displayed. The ungrateful bodies of the "plaguy beasts" were blamed, which would go wrong even after mortal science had expended its wealth upon them. Man never doubted his own wisdom; he never questioned his own conduct; and it is astonishing the quantity of

prejudice which is from year to year perpetuated for the want of a small amount of so cheap an article as mental inquiry.

The worst of the evil still remains to be told. The creatures, being bled, were esteemed so greatly benefited as to require no subsequent attention. **Phlebitis** was consequently, in other days, a rather common affection. If neglected, the disease may terminate in death. In cases aggravated by mistaken measures, the disorder mounts to the brain, and occasions awful agonies. Taken early and properly administered to, this disposition is easily arrested. It was formerly wrongly treated, and was traced to an erroneous origin. Phlebitis was, to the perfect satisfaction of learned judges seated on the bench, attributed to the surgeon's want of care. So serious an evil was imagined to be caused by culpable neglect during a trivial operation. It was thought to have been provoked by the use of a foul instrument, or by employing anything else to strike a fleam than a properly-made blood-stick.

Experiments, however, which were instituted at the Royal Veterinary College, have proved that no want of care, during the performance of bleeding, can provoke the disorder. Wretched horses, in that establishment, have been punctured with dirty, rusty, blunt, and jagged fleams; all manner of blood-sticks have been employed in every description of way. These have been struck violently and tapped in the gentlest fashion. Every possible sort of pinning up has been adopted; but the utmost endeavor of intentional perversion could not produce inflammation of the vein. There appears to be only one ascertained cause: that is, bleed; do not tie up the head, but turn it into a field, or present fodder to be eaten off the ground, and the animal will have phlebitis. The pendulous position of the head and the motion of the jaws alone seem capable of starting inflammation in the jugular vein. Therefore, should the reader ever permit a horse to be bled—which, save in extreme cases, is perfectly unnecessary—let him remember to place the animal subsequently in the stable, to tie the halter to the rack for twenty-four hours, and, during the same space, to abstain from allowing any food. These injunctions, however, do not refer to the bleedings sometimes adopted to counteract acute disease.

There is one circumstance which should always be well considered before any horse is bled: Certain animals have a constitutional predisposition toward this peculiar form of disease. The horse whose vein shall inflame no man can, by sign, mark, or investigation, pick from a herd. It is, however, an ascertained fact that particular animals, of no fixed breed, and apparently characterized by no recognized state of body, have a mighty tendency to exhibit this particular disorder. The horse may appear unexceptionable as regards health; but, nevertheless, strike

it with a fleam or puncture it with a lancet, and phlebitis will undoubtedly be generated; none of the usual precautions can *always* prevent the misfortune. Such predisposition evidently depends on a determinate condition of system which science has hitherto failed to recognize.

This fact, or eccentricity in the constitutions of isolated horses, ought to be generally known. Men have recovered heavy damages in courts of law, and blameless veterinary surgeons have been ruined, by circumstances over which the utmost stretch of human precaution could possibly exercise no control. However, a more extended knowledge concerning the real origin of this disorder may do some good, since it will guard juries from delivering wrongful verdicts, and may tend to check that love of venous depletion which is still too prevalent with ignorant horse owners.

There was formerly a great diversity of opinion concerning a supposed eccentricity in the facts observed during this disease. If a horse was bled in the neck, and subsequently exhibited phlebitis, the brain became affected. If an animal was depleted from the fore leg, and displayed the disease, the heart became involved. In one case, the disorder proceeded from the center of circulation; and in the other, it mounted directly toward the organ. A great many hypotheses were published to explain or to account for this imaginary peculiarity. Much nonsense was spoken, and more was written, to point out the real cause of an imaginary difference. Yet, calmly viewed, the seeming diversity appears to agree with the commonest law of nature. Phlebitis always closes the vessel at the seat of injury. The disease, therefore, in each case, is prevented from descending, and consequently ascends above the orifice—the only peculiarity being the relative situations of the structures involved.

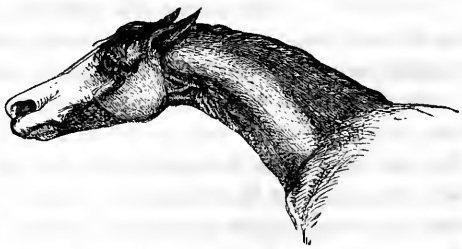
This affection is most common after blood has been taken from the neck. That seeming preference for a particular part may, however, be nothing more than a circumstance dependent upon the greater number of animals which have their jugulars opened. Were the brachial or the saphena veins punctured as frequently as the vessel which carries the blood from the brain, the apparent difference might appear in the opposite direction. However, from whichever vessel the depletion is effected, always tie the quadruped's head up, and present no food. A stall is to be preferred to a loose box, as the confined space is more likely to prevent action. Motion is the source of all danger. This fact was aptly illustrated by an anecdote which used to be related by the late Mr. Liston, the eminent surgeon. In his lecture, that gentleman surprised his class by stating that the last person whom he bled perished of phlebitis. Bleeding is the most simple operation in human surgery. Most surgeons

leave this office to the apothecary; consequently it was rather a condescension in one who deservedly ranked so high in his profession to stoop to such an act. What, therefore, could possibly cause disease to follow the operation, when performed by him who was accustomed to surgery upon its grandest scale?

The cause was soon explained. The person operated upon chanced to be a lunatic. This insane individual embraced the notion that the healing process was much favored by constant motion; consequently he kept on flexing and extending his arm with all the violence which is natural to the demented. In vain was every effort made to persuade him from so mad an action. He clung with extraordinary pertinacity to his unwholesome theory. On the following day, Mr. Liston was surprised to find his patient in bed, but still moving the arm in which disease had already declared itself. Measures were taken to keep the limb quiet, but it was found impossible to accomplish this in a satisfactory manner; and when Mr. Liston again called, the patient was no more!

A vein being about to inflame, the earliest intimation of the fact is given by the separation of the lips of the wound, while through the opening drains a small quantity of a thin discharge. Should this warning excite no attention, a round and hard swelling appears. That may be like a hazel-nut in size, or it may resemble half a chestnut in magnitude; and this is soon followed by a swollen state of the vein superior to the orifice.

Then supervenes the second stage of the disorder. Unhealthy abscesses are formed along the course of the vein. As these mature, they burst, and send forth an unsightly and filthy liquid resembling thin, contaminated pus. On examination, these tumors are found to be united. They penetrate to the interior of the vessel, and are joined together by numerous sinuses. They literally constitute so many holes in the neck.



A HORSE WITH PHLEBITIS, OR INFLAMMATION OF THE VEIN, IN THE SECOND STAGE.

If no attention be now paid to the aggravated symptoms, worse speedily ensues. In the direction

THE THIRD STAGE OF PHLEBITIS.

formerly indicated the vessel feels hard under the skin. Supposing this sign to be neglected, unhealthy pus issues in quantity from the wounds and soils the neck. This secretion is soon converted into a dark, impure, and fetid discharge resembling decayed blood. The horse grows dull and stupid; the inflammation ultimately affects the brain, when the suffering and the life are extinguished in the violent agonies of phrenitis.

The cure is easy, but everything depends upon the energy of him who undertakes it. When the lips of the wound which have been brought together by means of the twisted suture—as the "pin with tow wrapped round it" is professionally termed—display a tendency to separate, and, instead of being dry, appear moist, let no prejudice incline toward the ancient practice of fomenting and poulticing the injury. Without the loss of a moment in hesitation, withdraw the pin; remove the substance which was twined round it, and apply a moderate-sized blister immediately over and around the puncture. Should the disease have ascended up the neck, still rub in a blister; only a proportionate amount of surface must then be acted upon. If the case be as bad as possible, and yet the animal is alive, still a blister is indicated.

THE TWISTED SUTURE.
A pin is first stuck through the lips of the wound; a portion of tow, thread, or hair is then wrapped round the pin, and, to complete all, the point of the pin is lastly clipped off.

With the progress of the disease a larger space should always be subjected to irritation, so as to cover every part the most active imagination could suppose to be involved. One blister, moreover, will not suffice; another, and another, and another must be employed, till every sign of disorder has vanished. They must, however, be applied in quicker succession as the symptoms are more urgent, while a greater interval may be allowed between each when the affection is less serious. In the worst stage of phlebitis, another blister must be put over the part upon which the irritation of the first has not entirely ceased to act. In the second stage, the surface must have been barely healed before another vesicatory is resorted to. During the primary symptom, a single application frequently is sufficient; or, at most, two blisters generally suffice.

When the vessel assumes the corded state, a blister can effect no more than to check the progress of the disorder; no agency, however, which science has placed at the disposal of man can restore the uses of the vein. The vessel is lost, and lost forever. If a foul and black discharge issue from the openings, insert a director and enlarge the wounds, joining the holes by slitting up the sinuses which unite them; but do not cut the entire extent of the hardened vessel, as in that case you may be deluged in blood. The employment of the knife and the free use of blisters

constitute the chief means toward the cure of phlebitis. The sinuses must be laid open. The probe should then be most patiently employed, for every sinus *must* be slit up. This may be done at once, when the hardness indicates the vessel to be closed above the part which the incision interferes with. To such an extent the knife may always be employed, while blisters after blisters are used, regardless of the severe wounds over which they are applied.

Much relief is afforded by the large and pendulous incision, through which the corruption freely finds an exit. Some horses, however, from the pain occasioned by the raw and inflamed condition of the neck, will not allow the blister to be rubbed in after the ordinary fashion, especially when the irritation caused by the former application has not thoroughly subsided. In cases of this sort, do not employ the twitch or resort to greater restraints. Exercise your reason. Regard the painful aspect of the wounds. Ask yourself how you should enjoy the hard hand of a groom violently scrubbed over such a part, were the soreness upon your own body. Act upon the response. Procure a long-haired brush, such as pastry-cooks use to egg over their more delicate manufactures. Go then into the next stall. Speak kindly to a sick inferior that is at your mercy. Have the creature led forth, and, with the brush just described, smear the part with oil of cantharides or liquid blister. The extract of the Spanish fly does not occasion immediate agony, and the application of oil will cool or soothe the anger of the wounds.

With the jugular vein inflamed, the horse, during the period of treatment, should consume no solid food. Hay tea, sloppy mashes, and well-made gruel should constitute its diet. However, the gruel must not be given in such quantities or made so thick as the same substance would be allowed to a healthy horse. Gruel may not be very sustaining to the human being, but it is nothing more than the oat divested of the shell or refuse part. To the equine species such food, whether given dry or boiled in water, is highly stimulating; and, as fever invariably accompanies inflammation, oats in any form evidently are contraindicated. Should the animal, however, become ravenous, a portion of potatoes, being first peeled, may be boiled to a mash. Some water and a sufficiency of pollard ought to be added, and the whole presented in such a state as requires no mastication, but in a condition that will allow the mixture to be drawn between the teeth. The same thing may be done with carrots and with turnips, only all mashed roots, except potatoes, should be passed through a colander, and moistened with some of the water in which they are boiled.

Any animal, during treatment, should be placed in a loose box. No creature should be turned into the field. It is cheaper to pasture than

to stable a horse; but the constant motion of the legs, as the field is traversed, is injurious to the punctured vein of the limbs, while the pendulous state of the head and the perpetual movement of the jaws are most prejudicial when venesection has been performed upon the neck. The stable is, in every point of view, the cheapest and the best residence. The head of the animal must be tied to the rack throughout the day; while, at night, the halter may be lengthened, permitting the creature to lie down; but the floor should be littered with tan, as straw might be eaten.

Let the horse remain thus for six weeks subsequent to the completion of a cure. Then give gentle exercise to the extent which it can be borne—the quantity being small, and the pace very slow at first, but gradually augmented. This exercise should be maintained for three months. The animal may afterward return to slow work; but if the neck is the place affected, it must not wear a collar or be harnessed to the shafts for the next six months. At the end of that time the horse may return to its customary employment; but, if ridden or driven, it is always well to bear in mind the late affliction, and to grant more than the usual time for the performance of the journey. At the expiration of the year, the smaller veins, having become enlarged, have adapted themselves to the loss which the circulation has sustained, and the horse may resume full work.

For the first year, gruel, crushed and scalded oats, with two bundles of cut grass per day, should constitute the diet. The manger should be heightened, and the halter be so arranged as to prevent the head being much lowered. Do all in your power to render useless violent mastication; and, as the horse never chews when the operation is unnecessary, the animal will obviously second your endeavors.

At the expiration of twelve months the animal which has lost a vein may be sold, and, *in law*, has been accounted sound. Such a blemish, however, is far from a recommendation; in this case law and common sense may be at variance. The reader, therefore, is advised never to purchase a nag in such a condition without insisting upon a special warranty, in which it is provided that the animal is to be taken back should the loss of a vessel be productive of any evil effects within the space of one twelvemonth.

BROKEN KNEES.

These accidents affect the exterior of the central joint of the fore legs. They may be very trivial or very serious: they may simply ruffle the hair or scratch the cuticle covering the integument; the same cause may, however, remove the hair and lay bare the cutis. Moreover, the wound

is often aggravated by the nature of the road on which the animal is traveling. A fall upon a very rough surface might even destroy a portion of the skin, and deprive more or less of the cellular tissue of vitality.

BROKEN KNEES OF VARIOUS DEGREES OF INTENSITY.

The hair ruffled and the cuticle scratched.

The hair removed and the true skin exposed.

The skin destroyed and the cellular tissue injured.

Accompanying such accidents there is generally some amount of contusion. When it falls, the horse is in motion, and the impetus lends violence to the descent. Probably the animal is being ridden when it comes to the ground. The weight of the blow is not only then proportioned to the heavy body of the horse and the rate at which it is progressing, but its effect is augmented by the load upon its back. These considerations render **broken knees** the proper dread of every horse proprietor. An animal may stumble and come down which, prior to the mishap, would have been sold cheap for several hundreds. It may be raised from the ground with almost all its worth demolished. The nature of the hurt is not, however, always shown at first. The chief danger, in broken knees, lies in the accompanying contusion. The horse which rises without a hair ruffled, but which fell with violence, is always, with informed persons, a cause of considerable anxiety. Contusion is to be more dreaded in its consequences than is the largest wound when devoid of anything approaching to a bruise.

The reason why contusion is thus gravely regarded is because, when that occurs in severity, the vitality of all the coverings to the knee is destroyed, and, in very bad cases, even the bones are materially injured. All dead parts must be cast from a living body; and no man can predicate how deep may be the injury, or how important may be the structures which shall be opened, when the slough takes place.

Proprietors of horses thus injured are commonly very earnest in their solicitations for a professional opinion as to the extent and probable consequences of the accident. No certain judgment can, however, be pronounced, nor should one be given. Any surgical calculation, notwithstanding it may be most prudently qualified, is apt to be misconstrued by the anxiety of distress. The most guarded hint at a proba-

bility of recovery is too likely to be seized upon as a positive guarantee of perfect restoration; and the possible evils which may have been alluded to, confusion causes the individual not to remember. Therefore silence is wisdom in these cases, however slight the broken knee may appear in the first instance.

Broken knees are principally caused by the imprudence of him in whom authority is invested. Certain people imagine the public admire the man who chastises a horse. Such persons slash away for every trivial error. Every imaginary fault is punished with the whip, which too often curls around parts that should be respected. The animal, pained and frightened, thinks only of the slasher behind it, and entirely disregards the path upon which its eyes should be directed. The cutting is incessant, and the horse's pace is incautiously fast. An impediment is encountered; the animal trips; it is cast to the ground with violence, while the man is probably rendered fitter for a hospital than for the continuance of his travels.

Other riders and drivers always visit with severity the slightest indication of weak limbs. A sudden drop or a false step is, to such people, the signal for the reins to be jagged, the voice to be raised, and the whip to be freely exercised upon all parts of the animal's body, but mostly about the face and ears. The man likes to behold the poor creature shake its head, and loves to imagine he is then teaching the terrified quadruped to be careful. Equine pupils, no more than human scholars, are to be tutored by barbarity, which may slay the reason long before it can instruct the mind. Composure is imperative to the acquirement of any knowledge. Thrashing calls forth terror, and alarm is synonymous with confusion of mind. The horse is susceptible of a fear which humanity, happily, finds it difficult to conceive; and how far such a creature is calculated to be educated by cruelty, the intelligent reader is left to infer.

Could the animal argue, it might plead that the weakness objected to was caused by exertion made in man's service; that the stumbling gait was consequent upon no negligence on its part; that it afforded the beaten wretch no pleasure to have the knees broken, but, if the quadruped might profess a choice, it would prefer not falling down, etc. etc. If such pleas were properly considered, they perhaps might still the turbulence of the punisher.

The great majority of these injuries are consequent upon the prejudice or thoughtlessness of mankind. Popular admiration is, in this country, much in favor of a good crest. Every animal, no matter how nature may have formed the neck, must carry a good head. The rider, therefore, drags upon the bridle, while the form of nearly every gentleman's harness-horse is distorted by the bearing-rein. The constraint thus

enforced not only obliges additional muscular action, but it disqualifies the animal to see the ground. In England there should be no objection to a blind horse, since such of the species as have eyes are, by the prejudices of society, seldom permitted to use them. The horse, being urged on when virtually blindfold, must of necessity stumble upon any unusual impediment being encountered. Such an accident shows no fault in the quadruped; but the man is truly responsible for those consequences which his folly has induced.

When a horse stumbles, never raise your voice—the creature dreads its master's chiding; never jag the reins—the mouth of the horse is far more sensitive than the human lips; never use the lash—the horse is so timid that the slightest correction overpowers its reasoning faculties. Speak to the creature; reassure the palpitating frame; seek to restore those perceptions which will form the best guard against any repetition of the faulty action. When the legs are weak, the greater should be the care of him who holds the reins. No cruelty can restore the lost tonicity of the limbs; therefore all slashing is utterly thrown away. If the reader regard his own safety, let him not, when riding, hold the head up, or, when driving, sanction the employment of a bearing-rein. No inhumanity can convert an animal with a ewe neck into the creature with a naturally lofty crest. The disguise of such a defect as a head badly placed on the neck is an impossibility. Therefore, if you are desirous of a well-carried head, think of it when making the purchase. Pay something more, and any kind of quadruped is obtainable; but be above the meanness which purchases for a low figure, and then endeavors to palm off its cheap article as a jewel procured at the highest price.

When a horse has been down, never judge of the injury by the first appearance. While the animal stands in the yard, order the groom to fetch a pail, with milk-warm water and a large sponge. With these he is to clean the knees—not after the usual coarse and filthy fashion now universal; not by first sopping the part, and then squeezing the soiled sponge into the pail whence more fluid is to be abstracted. The dabbing and smearing a wound simply irritates it; and the dirt, having all entered into the pail, the fluid is rendered unsuited to after cleanly purposes.

THE PROPER WAY TO WASH A BROKEN KNEE.

To perform the office properly, the knee should not be touched. The sponge should be saturated, then squeezed dry above the seat of injury. The water thus flows in a full stream over the part, and, by the force of gravity, carries away any loose dirt that may be upon

the surface. Sopping, dabbing, wiping, and smearing occasion pain, and can remove nothing which may have entered the skin and which is protected from the action of the sponge by a covering of hair; whereas by the plan recommended the dirt is removed, the part is not debilitated, neither is its natural energy destroyed. The last drop of water, moreover, is as clean as was the first, and the animal is not irritated immediately prior to a surgical examination.

The wound being cleansed, a certain time should be allowed to elapse for the horse to recover its composure. It should return to the stable, have a feed of corn, and be watered. Then the real business commences. The animal should be gently approached; its condition should be observed. If any nervousness is exhibited, the person ought to retire, and a further pause should be allowed. If, on the second visit, any unusual symptoms are displayed, have the quadruped led into the yard and blindfolded. Let a man take up the other fore leg, when the knee may be examined with safety.

Place the palm of the hand over the joint. Hold it there to ascertain if any heat or swelling is to be detected. Should there be swelling, make gradual and gentle pressure upon it with the thumb or one finger. If, upon suddenly removing the hand, an indent is conspicuous, it argues considerable effusion, and justifies fear as to the result. Should neither heat nor swelling be remarked, further pressure is to be made with the thumb upon the knee. The force should be gentle at first and gradually increased. If the action is sustained well, or even moderately endured, it allows of hope being entertained. But should the horse attempt to rear upon the first impress of the thumb, the result is very dubious. The absence of agony is far from anything approaching to a positive proof, as bone and synovial membrane, tendon and ligament, do not take on acute inflammation when first injured; but, from the response thus elicited, a fair inference as to the probability may be drawn.

Should the skin be lacerated, the probe must be employed. Such injuries are very deceptive. They may be much more extensive than the size of the wound would indicate. The probe being of metal, ought not to be thrust violently against every exposed part. This kind of proceeding can effect no good. The probe should be held lightly between the thumb and fore finger; no pressure should be made upon it —the instrument ought rather to fall of its own gravity than be forced into the flesh. A thin piece of wire can be readily driven into soft structures; but where an actual division exists, no opposition necessitating force will be encountered.

Broken knees always happen when the horse is in motion. The onward impulse is not by the fall immediately destroyed; but after the

horse is down there always exists an impetus which has a tendency to propel the body forward. Should the skin of the knees be divided by the fall, the after-force obviously cannot affect the upper line of such division; but the lower edge of skin will present an acute obstacle to the roughened ground, and will, by the grating of the body, in all probability be rent from its attachments. When the animal rises, the action and the elasticity natural to the integument will occasion the torn portion of the skin which has been driven backward to once more assume its original position. By this means a kind of bag or purse is formed upon the knee. Grit, mud, and all kinds of impurities may be retained and concealed within this pouch. These will be disposed to irritate the structure with which they are in contact; suppuration is certain to be established, and sad consequences have followed such sacs not being early detected.

Such a cavity having been discovered, the next object is to ascertain its dimensions. That is done by gradually moving the probe along its sides. Should it be small, it will be sufficient that a hole be made through its most depending portion with a sharp seton needle. If it be large, the needle should be armed with a piece of tape knotted at one end. The sac being punctured, the needle is to be drawn through the opening, the tape being left in the cavity, and a seton is thus formed.

PROBING THE SAC OF A BROKEN KNEE.

A SETON BEING INSERTED THROUGH THE SAC OF THE KNEE.

The seton should be knotted at the other end, and moved its entire length every night and morning. It will prevent all premature attempts to heal, will stimulate the soft parts to suppuration, and will remove the dirt, as the tape affords a guide to the secretion. When inserting a seton into the knee, always use a large curved needle. The size of the instruments should never be regulated by any foreign standard, but should always be proportioned to the magnitude of the patient and the intention of the operator.

Three days subsequent to the full establishment of suppuration, cut off one of the knots, and, laying hold of the other knot, withdraw the seton. Its advantages by this time are gained, and its longer stay, by hardening the opening through which it passed, would occasion lasting blemish.

The reason of its insertion is thus explained. Where foreign matter is confined, no wound will heal; the orifice may close, but soon after abscess forms. This process is repeated until the suffering is long protracted. Danger is generally proportioned to the duration of the evil, where wounds not of a mortal character are concerned. By the agency of the seton, the foreign matter is removed and the healing process thereby considerably expedited. After the above plan, all blemish may be lost by the expiration of the third month, and the once injured knee restored to its uses, being as fine as any other part of the body.

Everything being accomplished as it is here directed, no attempt must in the first instance be made to poke out any particle of dirt which the probe may touch. The bagging skin being divided by the seton having been established in the sac, no further thought need, for the present, be given to a common but most vexatious attendant upon the customary treatment for broken knees.

The animal should be returned to its usual stall and have the head "racked up." Some cold water should then be procured, with every quart of which two ounces of tincture of arnica should be blended. A portion of this fluid ought, with a clean sponge of moderate size, to be poured into a saucer; the groom must have strict orders to take the sponge, and, having saturated it with the fluid, to squeeze it quite dry, allowing the liquor to run over the injured knee—after the manner previously illustrated, as washing the wound. Two men are required for this office, which should be performed every half hour throughout the day and night for half a week. The injury being thus made continuously wet, the cold produced by evaporation keeps down inflammation, while the arnica is a potent remedy for bruises and all kinds of contusions or lacerations.

If at the expiration of the period named no swelling appears, and suppuration seems to be thoroughly established by means of the seton, the halter may be released to a great extent, a cradle being merely fixed upon the horse's neck; the animal will thereby be permitted to lie down and to enjoy its natural rest.

But should the joint be much enlarged, should the part have become acutely sensitive, while the horse resolutely refuses to bear any weight upon the injured limb, then withdraw the seton, give the animal two pots of stout per day, and all the oats mingled with old beans which it

will consume. Untie the head and place the horse in slings; employ the arnica lotion night and day, until the slough is thrown off, which, having taken place, change the liquid application for the solution of chloride of zinc—one scruple to the pint of water—and continue to employ this last lotion after precisely the same manner as has been previously directed.

Probabilities, however remote they may seem to be, are here endeavored to be anticipated; although the author's experience cannot recall a single case where the arnica lotion has been used with proper assiduity, and any but the most happy results have followed. When an animal has fallen violently to the earth, and has been, in the first instance, shown to the writer with much tumefaction and excessive tenderness, a slough has in exceptional cases followed; but never has the enlargement or the sensitiveness increased under the proper use of the arnica lotion. The slough, moreover, in such instances, has been superficial, only entailing loss of hair, and never occasioning open joint.

All horses are exposed to these accidents for the reasons already stated. Whenever such misfortunes occur, employ the arnica lotion. Should the skin be divided, still use the arnica lotion until copious suppuration is established. The secretion once seen, resort to the lotion formed of chloride of zinc and water—one grain to the ounce—which operates most marvelously upon all suppurating wounds.

No absolute period can be stated which a case of broken knees, when severe, ought to occupy. The danger, however, is generally passed by the expiration of a week, and the cure commonly entails loss of services for a couple of months.

AN ORGANIZED KNEE, ENSUING AFTER A LONG COURSE OF THE ORDINARY TREATMENT.

THE APPEARANCE OF THE KNEE SUBSEQUENT TO THE HEALING OF THE WORST CASE THE AUTHOR EVER HAD UNDER HIS CARE.

When adopting the foregoing mode of treatment, no bandages are to be employed. Such wrappers only augment the heat inherent in every species of inflammation. They dam up the pus and speedily become foul and offensive rags; cleanliness is one of the primary requisites toward good surgery.

No caustics of any kind are imperative or even necessary. The two lotions, if used with proper zeal, will accomplish all that can be desired. The arnica lotion should, however, be in all cases applied night and day during the early stage; the chloride of zinc lotion ought to be employed only during the time man is usually out of bed.

The wound, in ordinary cases, should not be washed or touched. Should proud flesh start up, such is positive proof of the negligence of the groom, whose duty it was to apply the chloride of zinc lotion. If the mode of treatment here laid down be strictly pursued, the author can with confidence promise a satisfactory and a speedy cure. To enforce the value of the measures recommended, the portraits of two knees, which were subjected to the opposite processes, have been presented. Both were copied from living subjects in the sixth week after the misfortune had occurred.

OPEN SYNOVIAL CAVITIES.

The primary cause of these fearful accidents is the pride of mankind; gentility is always striving to impose upon credulity. It loves to be mistaken for something better than it really is. After all, this vice of society is nothing more than the child's game of "Lords and Ladies," played by grown-up persons. A horse having a naturally defective neck is obtained; no barbarity is too abhorrent to repress the hope of making people believe the steed thus deformed is a creature of extremest value. The animal, if ridden, has the chin pulled in close to the neck; if driven, the free carriage of the body is prevented by the cruel bearing-rein. The horse progresses in agony, while gentility sits smiling at the result of its artifice. The horse cannot see the ground before it, because of the constraint imposed upon the head; it cannot fix attention upon its duty, because of the agony which the cunning of gentility inflicts upon the lips. The pace is always rapid; the action is high as in the case of blindness; and the animal generally comes to the earth with violence. The skin upon the knees is divided, and the structures beneath are penetrated. One or more **synovial sheaths** are opened, while the cavities formed by the junction of the separate bones may be lacerated.

Sheath or joint may not be immediately opened by the fall, but either may have their integrity destroyed through the slough induced by the contusion consequent upon a broken knee. Moreover, various accidents will occasionally happen—misfortune is of infinite variety. The synovial bursæ, sheaths, or cavities of the hind legs are occasionally punctured by the quadruped kicking violently while in harness. The capsule, embracing the tendon of the flexor brachii upon the point of

the shoulder, has been opened by the animal drawing a vehicle being run into; or by the horse running away and coming in contact with some obstacle. Any synovial cavity within the body may be penetrated by an unfortunate combination of circumstances; or by the unbridled passion of the groom, who may have a pitchfork near at hand. So also they have been cut into by the arrogance of unskillful operators. However, it matters not how the misfortune may arise, the mode of treatment and the manner of cure is in all such cases exactly the same.

Neither, as regards the primary effect, is it of subsequent importance whether air be admitted into an opened bursa or sac, a synovial sheath, or the interior of a joint. All of these structures are formed into bladders or closed cavities. They all contain a similar secretion, which is a transparent, albuminous fluid, resembling white of egg. They all are of one use, or all serve to facilitate motion. The bursa is the smallest; the synovial sheath is the next in magnitude; and joints may be much the largest. The secondary effects are proportioned to their size, but in the first instance much constitutional disturbance will attend the opening of each.

These structures are not formed to endure the presence of atmosphere; air is admitted a short time after each displays inflammation. This creates symptoms of irritability, and air will enter before we see the wound. The secondary effect is, however, most to be dreaded. Bursæ are small bladders, or closed sacs, distributed over the body, and located wherever the natural motions possibly might originate friction. Sheaths always embrace tendons, being essentially closed sacs. The secondary effects of tendinous sheaths are so much the more to be dreaded than those attending punctured bursæ, because the last generally lie loosely between highly-organized parts; whereas a sheath is partly fixed upon a tendon, and tendon, being lowly organized, is more difficult to cure when it is diseased. However, joints are much worse than the preceding two; because in these the synovial membrane is partly spread over the cartilage, which lies upon the articular surfaces of bones. Now, cartilage is the most lowly organized substance in the entire body. When disease fixes upon it the morbid condition is so slow, so irritating, and so difficult to eradicate, that science almost despairs of the issue.

The results indicated show that every effort should be made to ward off the secondary effect. Therefore, when an accident of this nature occurs, proceed with the utmost gentleness. Having procured a large sponge and a pail of milk-warm water, saturate the sponge and squeeze it dry, above the injury. Do not touch the sore, but allow the fluid, as it gravitates, to wash off all or any foreign matter. With regard to the wound, dirt seldom enters that. When it does, the suppuration which

must ensue upon the accident will more effectually remove it than could hogsheads of water, however unfeelingly it might be employed.

The part having been rendered clean, the wound is to be attentively observed. When nothing but blood or serum, or thin, discolored fluid can be seen, this argues the more important structures are entire. Should there be among, and yet distinct from, those discharges, a transparent, glairy liquid flowing forth, such is absolute proof some synovial membrane has been severed. The size of the current and the abundance of the secretion are also evidences not to be despised. Probabilities may be inferred from these circumstances. If the amount of the synovia be small, there is hope that a bursa only has been interfered with; when the amount is large, it demonstrates that either a sheath is punctured or the joint itself may have been opened. Synovial cavities between bones may be larger, and are much more active than the sheaths of tendons; therefore the magnitude of the current should be observed; although, when the integrity of many parts has been destroyed, little absolute dependence will be placed upon the comparative quantity of the synovial secretion.

Anatomy is, under the circumstances, a fair guide. Where numerous structures are involved, a well-grounded learning is requisite for accurate judgment; but as regards the knee of the horse, the spot whence

No. 1.

THE TENDONS WHICH CROSS THE OUTSIDE OF THE KNEE-JOINT.

Explanation of No 1.

1. The extensor metacarpi tendon.
2. The extensor metacarpi obliquus tendon.
3. The extensor pedis tendon.
4, 5, 7. Connecting and restraining bands between the tendons.
6. The extensor suffraginis tendon.
8. The flexor metacarpi externus tendon.
9. The back sinews.

No. 2.

THE TENDONS WHICH CROSS THE INSIDE OF THE KNEE-JOINT.

Explanation of No. 2.

1. The extensor metacarpi tendon.
2. The extensor metacarpi obliquus tendon.
3. The flexor metacarpi internus tendon.
4. The back sinews.

The letter *a* denotes the only spot where the knee-joint could probably be opened by a fall without lacerating a synovial heath or injuring a tendon.

the synovial discharge issues is of all importance. The incision must either be very deep and gaping, (all subjacent structures being divided before the knee-joint can be exposed,) or else the wound must affect a very circumscribed place. The reader, by consulting the above anatomical engravings of the horse's knee, will remark how closely it is laced

about with tendon. Each of the tendons, when crossing the joint, is embraced in a synovial sheath. From such information, it will instantly be seen how far more likely a sheath is to be lacerated than the joint is to be punctured.

The single point where the joint could be entered without severing tendon, lies rather on one side than directly in the center. The vulnerable spot is therefore not exposed to the full force of the blow. To lay bare the joint by an ordinary fall several parts must be divided. Rarely is an accident witnessed of so fearful an extent. Generally that which is spoken of as open joint proves to be no more than punctured sheath, the presence of synovia being commonly accepted as the proof. But when the joint is really laid open, the immense flow of synovia—so many sheaths being severed—should at once prove the fact.

PROBING BROKEN KNEE.

The probe must next be used. In the first instance it should be employed to ascertain whether the fall has left any purse or sac at the inferior part of the joint. All which was enforced respecting the use of metallic wire to a raw wound must here be observed. The probe had better be altogether discarded than employed with the smallest approach to rudeness.

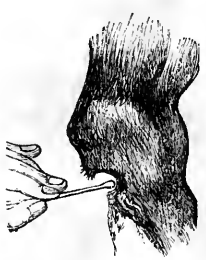
The suspected sac having been discovered, a large spatula is placed below the knee. A knife with a keen point, but with the edge only sharpened for one-third of its length, is to be used. Upon the cutting point of the knife a piece of beeswax is firmly moulded. The wax answers the purpose of a temporary probe; the blade, thus guarded, is cautiously inserted beneath the loose flap of skin. When the bottom of the pouch is reached, a certain amount of resistance will be encountered; through this the knife is driven. The force cuts in twain the wax, and pushes through the integument the blade, which the spatula guides from the leg. This operation should be performed quickly; the hand should simply be carried downward, and then brought upward when all is concluded; care, however, being taken that the withdrawal of the knife does not injure any part save those it was designed to cut.

THE MANNER OF OPENING THE DIRT SAC, IN CASE ONE SHOULD BE PRESENT WITH OPEN JOINT.

Should the horse be nervous, it is desirable to blindfold the animal and order the groom to hold up the sound leg; the creature can then only rear. When thus disabled, that movement is rendered difficult, and it is proportionably slow. The operation, if properly performed, should be over before action can be prepared for; and by the knife a considerable incision is made in the bottom of the sac, through which all grit or dirt can, with the pus, readily pass.

The examination concludes with a second resort to the probe. The instrument is in surgery of great use; but as it is commonly employed, reason may doubt whether injured life has been much benefited by its invention. It generally is raked and poked about as though the person holding it was determined, at all hazards, to ascertain the length, breadth, and every irregularity of the wound he is asked to cure; much harm is thereby done. Delicate attachments which, if not interfered with, might induce speedy reunion, are thus broken down, and the injury aggravated; while the operator thinks he ought to know all about the lesion he is to treat, and supposes that he can possibly do no harm with an instrument which the best schools order to be employed.

A good surgeon has no curiosity to gratify; all he desires to know is so much as will enable him to benefit the patient placed under his care. Therefore never abuse the probe in cases of open synovial cavities. Imagine the distance the bones are from the surface; and, if the probe can enter a very little beyond that distance, such a fact demonstrates the cavity to be exposed. When a horse is before you with synovia running from a wound upon the knee, have the leg slightly flexed; look for the most free space, and into that insert the probe. The bones of the knee-joint are directly under the skin; and, when no opposition is encountered for three-quarters of an inch, be sure the joint is exposed.



PROBING AN OPEN JOINT.

Most of the cases narrated as opened joints were simply punctures into synovial sheaths; as such, they were sufficiently serious, but not of so important a character as is assumed for them. Synovia is placed between the ends of bones, its use being to prevent the friction which otherwise would be occasioned by the movement of one hard body upon another. Being confined in a circumscribed sac and incapable of much compression, the liquid performs all the uses which could appertain to the most solid substance. When the fluid—which, from its thick appearance and unctuous feel, was formerly termed "joint oil"—has escaped, the bones grate against each other, inflammation ensues, all neighbor-

ing parts sympathize, and the constitution suffers from intense irritation.

Something of this kind happens when a synovial sheath is punctured. The tendon comes in contact with its investing synovial membrane; but there are reasons why that circumstance is not so serious as when the lubricating fluid is released from the cavity of a joint. Tendons support no weight, and their motion is, with the sick, almost optional. The bones are the pillars on which the body rests; even while the frame is prostrated, a certain degree of pressure is upon them; for that reason, and also because tendon is more highly organized than cartilage, the first-mentioned substance is endowed with the greater renovating energy. An open joint is consequently far more serious than a punctured sheath.

Notwithstanding the serious nature of these accidents when wrongly treated, few injuries yield more kindly to proper measures than open joint. However, should the ordinary treatment of caustics and bandages be adopted, the entire limb, before the expiration of a week, will be hot, hard, and tense. The health of the animal will be seriously affected by the continued irritation, and the body will rapidly become emaciated. The foot of the limb will with evident difficulty be held from the ground. Should not death interpose—the animal being unable to lie down, and the entire weight being cast upon the sound limb—the foot attached to the healthy member frequently becomes affected with the worst form of incurable laminitis.

THE INJURED LEG, HARD, HOT, TENSE, AND SWOLLEN—ALL RESULTING FROM THE INJUDICIOUS EMPLOYMENT OF BANDAGES.

Even should such a misfortune as laminitis not occur, the after-deformity and blemish renders the horse almost worthless. The bones sympathize in the general disease,

OSSEOUS STRUCTURE HAS BEEN THROWN OUT, CAUSING ENLARGED KNEE AND PERMANENT BLEMISH—THE RESULTS OF USING BANDAGES.

EXTENSIVE LOSS OF HAIR, GENERAL ENLARGEMENT OF THE KNEE, AND ORGANIZED THICKENING OF THE SCAR—RESULTING FROM THE USE OF BANDAGES.

and a large osseous deposit is engendered to mark the surgical inaptitude. When bony growth does not follow, the parts lying immediately

over the knee thicken; the skin sloughs, and, the integument never being restored, a full knee with a lasting blemish is the consequence.

OPEN SYNOVIAL JOINTS.

The more favorable terminations are never to be anticipated when the barbarity of bandages and the cruelty of caustics are sanctioned. The horse which recovers from such treatment is, by an enlarged and blemished limb, rendered an object painful to contemplate, and is entirely unsuited to any gentleman's uses, while the life of the creature is rendered burdensome. There is nothing in the proper treatment which a child might not safely apply. The measures create no pain and require no force; they rather soothe than irritate, and therefore are always submitted to with complacency.

OPEN JOINT ENSUING UPON BROKEN KNEE, AND SOLELY CAUSED BY THE ABUSE OF BANDAGES.

THE GENERAL APPEARANCE OF AN OPEN JOINT WHEN FIRST SUBMITTED TO THE NOTICE OF THE SURGEON.

The animal, when first brought in, never displays symptoms indicating the full extent of its injury. The part which has been wounded generally presents something like the aspect represented in the engraving on the right. Commonly there is an evident flow of synovia, but the most careful examination can seldom detect positive evidence of an open joint.

The full extent of the evil cannot be known before the slough takes place. This is certain to follow upon the customary bleeding, physicking, low diet, bandages, and caustics being employed. As recovery is wished for, all such aggravations must be rejected. Proceed, in the first instance, as has been directed for broken knee; and these things being done, give the following drink:—

Sulphuric ether	One ounce.
Laudanum.	One ounce.
Water	Half a pint.

Give this without noise or violence.

Treat the frightened animal with even more gentleness and patience than would be bestowed upon a sick child. A harsh word may now,

when the system is shaken and every nerve unstrung, do that harm which no medicine can repair.

Having given the drink, look at the animal and take the pulse. Should the appearance denote inward comfort, should the pulse be natural, give no more drinks; but if the eye is in constant motion, if the horse breathe hard and start at sounds, if the head is held high and the ears are active, repeat the ethereal draught, and continue repeating it every hour until the foregoing symptoms abate.

The object of the medicine being gained, have the horse quietly led into a stall; the stall it has been used to is the best, and the favorite neighbor need not be removed. But all other quadrupeds which might disturb the sick animal should be taken out of the building. A good, clean bed should be shaken down, and the diet must be suited to the symptoms. If the pulse is at all low, no hay should be allowed till it amends; should the arterial beat denote oppression, a rather large proportion of beans may be blended with the oats. If the breathing is short, the countenance unhappy, and the eye sleepy, while a very quick and feeble pulse only is to be detected, give four of the ethereal drinks in the twenty-four hours. Also allow two quarts of stout daily.

All horses should be accustomed to drink beer; with very little teaching they abandon their teetotal habits, and will by very expressive action signify delight at the sight of a pewter pot. The best means of introducing the beverage to their notice is, in the first instance, to break a penny loaf into pieces, to soak the pieces in the beverage, and then to offer them, one by one, from the hand of the master or the favorite attendant. Animals quickly learn to recognize their owners. The dog will bestow such a welcome upon its proprietor as is never lavished upon any stranger. The horse also learns to recognize the individual whose property it has become. See the animal which has carried the groom without excitement to the door, and which has walked before the house with pendant head and listless ears: the moment the door opens and the master appears, all dejection is cast off; the creature cannot stand still when the foot is in the stirrup; and, immediately the weight is felt upon the back, the happy quadruped prances gayly off, often at the risk of unseating him who has provoked this demonstration of excessive pleasure.

The master who is unknown has earned his fate by his neglect, and probably may live to repent his inattention to the duties which Providence has intrusted to his charge. The affections of the meanest creature that breathes are blessings which the highest and the proudest may well stoop to gain. The love of a horse is not to be despised; the noble quadruped is easier controlled by its uncultivated impulses

than by all the restraints which brutes have invented or fools have adopted. It should enter into the considerations of every life assurance company, whether the man who takes out a policy is of a nature likely to be loved by the animals which he possesses.

Beer is everywhere procurable, and it is not to be altogether contemned as a medicinal stimulant. Many a horse which is now lost upon every hard field-day would have been saved if the animal had been pulled up at the nearest public house to be presented with a slice of bread and a pint of beer. Such nourishment would not load the stomach; but it would serve to keep off that utter exhaustion from which too many steeds fail.

THE MANNER IN WHICH LOTION SHOULD BE APPLIED TO AN OPEN JOINT.

The animal being in its stall, then apply the lotion, composed of tincture of arnica, two ounces; water, one quart. Use this by means of a sponge and saucer. Pour some of the liquor into the receptacle. Saturate the sponge and squeeze the fluid upon the leg, but above the injured knee. Do this after the manner which is illustrated as the proper mode of washing the wounded part.

Continue with the arnica lotion, night and day, for half a week. No periods can be named for applying the sponge, as inflammations, and therefore the drying powers, vary in different individuals; but the knee should be always wet. This should be attended to for the first three days and a half, during which the halter should be tied to the rack. At the end of that time turn the horse very gently round. Remember the condition of the limb, and allow time for the performance of an action which is always an effort to the most agile of the equine species, as few stalls are a single inch too wide.

The animal being with its face to the gangway, and fastened by the pillar-reins, place the slings before it. Leave the creature to contemplate the apparatus for half an hour. Then take the cloth and hold it up to the inspection of the quadruped. Afterward place it between the fore and hind legs—pausing and speaking kindly should alarm be displayed. Thus by degrees fix it to the pulleys and bring it near to the abdomen, which, however, should by no means be touched. Then caress the creature's head, and present some of its favorite food: eating generally tranquilizes the mind of an animal. So much being done, proceed to fix the straps upon the chest and withers. Then fondle the sufferer again, and it will permit the hind tackle to be arranged.

When all is fixed, leave a pail of water suspended from one pillar,

and put an elevated trough, charged with favorite provender, in front of the horse. Let it be watched till a week from the date of the injury has expired, and never left during that period even for an instant. If any restlessness is exhibited, the attendant should approach and caress the creature. Quadrupeds—though none comprehend the precise meaning of the language—love to be praised. The hand, fondly applied to the skin, and the human voice, modulated by kindness, seem to convey a purport to animals which they will suffer pain to deserve. The writer lately had a favorite dog, whose aversion was dry bread. It would hold the detested morsel in its mouth for hours, looking most uncomfortable, but making no attempt at mastication. Yet, upon praise being lavished, the eye would brighten, and, rather than prove unworthy of so much commendation, the hardest and stalest crust would be chewed and swallowed.

Watching is necessary, because many horses when thus imprisoned, being left alone, grow terrified and injure themselves by struggling their bodies out of the slings. The presence of any human being assures the timidity and checks the active imagination of a solitary animal. The author well knows that the learning of the present time denies imagination to animals. Shying, is only the creature imagining something which is not actually before it. What are dreams but positive evidences of imagination? All people have heard the suppressed bark and seen the excited limbs of the dog as it slept upon the hearth rug. How many grooms have been surprised, upon their earliest visit, to see the stable knocked to pieces and the horse prostrated amid the ruin it has created! How is this to be explained if imagination be not present in the animal? This is the author's interpretation of the mystery. Dreams are active, in proportion to the immaturity of the reason. Children often wake up in tears, and continue screaming in terror for long periods if unattended to. The horse starts out of a fearful vision; darkness is about it; the fear augments; the animal begins kicking; the sound

A HORSE IN SLINGS FOR OPEN JOINT.

made by its own feet increases the creature's alarm; it lashes out frequently until it has pounded part of its dwelling into atoms and disabled itself to that degree which makes the highest punishment the greatest mercy.

A high trough is required to guard against the effects of that itching which attends the healing process, and provokes the animal to strike its knees. This it would do against the manger were its head in the customary position. Were a wall before it, the knees might still be laid open; but with a high trough nothing is within the reach of its injured joint. Even supposing one of the slender supports, by the cunning of excitement, to be struck, the substance should be too light to offer any dangerous resistance, the blow being far more likely to overturn the machine than to lacerate the limb.

When the quadruped has remained sufficient time in the slings to have become familiar with them, pull up the cloth so that it may slightly touch but not press against the belly. Then well secure it, and leave the animal to rest its wearied limbs, or not, as it pleases. Its suffering joints will soon teach the horse to bear the entire weight upon such a support, and to sleep comfortably in the contrivance. With a few, and only a few examples, living in slings has induced such confirmed constipation as necessitated a daily resort to bran mashes. Most horses, however, speedily accept and grow fat, enjoying the relief thus afforded. Only one caution need be given—look well to the tackle. The horse is very heavy, and should a single fastening prove insecure, the result might convert a healing wound into a hopeless injury.

With the employment of slings, change the lotion for one composed of chloride of zinc, one scruple; water, one pint; this need be applied only during the day. It is too weak to occasion pain, and should be used with the saucer and sponge, after the manner of washing a broken knee or open joint, which has been previously illustrated. The strength, nevertheless, is sufficient to coagulate the albumen of the synovia. Thus it forms a species of natural bandage which excludes the air, while at the same time it stimulates the flesh and causes that to heal under the protection of its own albuminous secretion.

THE ALBUMINOUS BALL, WHICH FORMS IN SHAPE OF AN OPEN JOINT WHEN TREATED WITH A SOLUTION OF CHLORIDE OF ZINC.

The coagulated albumen frequently accumulates in front of the knee. The author has seen it attached to the part quite of the size and very near to the form of the largest apple. It must on no account be touched, however large it may grow or however

insecure it may appear. Respect it, and it will fall off when its service is accomplished. The cure is nearly completed when the white ball falls. Shortly after the wounds being closed, and pressure made with the fingers—not with the thumb—can be endured, the slings may be removed; though the healing should be further confirmed before the horse is allowed to stand opposite to any substance against which it may strike what recently has been a fearful open joint.

WOUNDS.

To this species of injury the horse is much exposed from the recklessness or incompetence of those who assume to hold the reins of authority. Occurrences which are politely termed "accidents," generally entail suffering upon the blameless animal. The common provocatives of such *accidents* are either the drunkenness of man or his utter ignorance of the mental attributes of the quadruped he has possession of. The first cause shall be passed over in disgust; the second merits some consideration, being rather a universal than an individual fault.

When a horse pauses, always endeavor to ascertain the motive; the reason may be groundless. By gentleness, convince the creature that its fears are without foundation, and you earn a supremacy as well as win a gratitude which will always be cheerfully acknowledged. Never employ the whip to correct "the obstinacy of the brute." The horse is naturally very fearful; were it not so, man would never have obtained that mastery which is imperative for domestication. Elderly gentlemen should never thrust their heads out of carriage windows and shout to the driver to "go on." Such implied chiding may urge the coachman to display severity, and the horse is dangerous when alarmed. So long as the animal continues calm, the superiority of man is submitted to; but once excite the terror of the quadruped, and all earthly restraint is powerless. Dread assumes the form of the wildest fury, and the horse tears onward, insensible to mortal punishment and blind to every danger.

It is in this manner the most terrible wounds are produced. Such injuries, in surgical language, are defined to be "solutions of continuity," or "separations of the skin and soft parts underneath." Neither of these definitions, however, includes a bruise or a contused wound. Therefore, for the present purpose, a **wound** will be interpreted an injury inflicted by external violence.

A lacerated wound may be too trivial to attract the surgeon's notice, as a scratch. It may also be a very serious affair, as when a cart-wheel runs against a horse's thigh, tearing the flesh asunder. Laceration is

generally accompanied by contusion, though contusion forms no necessary part of a lacerated wound. When such injuries are inflicted, they are mostly followed by little hemorrhage; yet it is far from unusual for an animal thus hurt to perish. Shock to the system is the most serious of the primary effects. Beyond that the immediate consequence appears to be insignificant. Little blood is lost, for the vessels are stimulated by the violence which rends these tubes and the soft structures asunder. Stimulation causes the torn mouths of the arteries and veins to close or to retract. The ragged coats of the vessels, the loose fibers of the flesh, and the jagged cellular tissue likewise fall over the orifices, and help to stay the flow of the vital current.

DIAGRAM OF A SEVERE LACERATED WOUND.

The dangers attending lacerated wounds spring, in the first instance, from collapse. This possibility being overcome, the immediate peril has been surmounted; all injuries of this nature are commonly attended, however, with more or less contusion. The force necessary to tear open a portion of the body will, of necessity, bruise or kill some part of the flesh. Any animal substance, when deprived of vitality, must be cast off by a living body; a slough must follow. Now that process is attended with hazard in proportion as it is tardily accomplished. The period of its occurrence is always one of anxiety; for when this process takes place, the stimulation that originally caused the vessels to retract no longer exists. All mechanical opposition to hemorrhage is, with the loss of the dead matter, generally removed. Everything, therefore, depends upon the fibrinous deposit—a sort of glutinous material secreted by the body, which is commonly largely poured forth when any slough by natural and speedy action is effected. Should the frame be so far debilitated as to prevent all secretion of fibrin, the most frightful bleeding must ensue.

The horse which has not recovered from the original injury will then sink under the terrible depletion. Therefore, it is impossible to form any opinion of the injurious effects or of the consequences likely to follow a lacerated wound before some time has elapsed.

An **incised wound** implies a division, more or less deep, of the soft parts. This form of injury produces less shock to the system, and generally heals more quickly than any other. The principal danger is encountered at the moment when the wound is inflicted; vessels may be sundered, and they are cut in twain with the least possible irritation to the parts within which they are situated. The veins and arteries, there-

fore, do not generally retract any more than do the soft structures. A gash into a fleshy substance always produces a gaping wound, which is wide in proportion to the depth and length of the injury. From that hurt the dark-colored venous blood drains in a stream, while the bright scarlet or arterial blood is propelled forth in jets, sometimes to a considerable distance. These jets correspond with the pulsations of the heart; but as syncope or fainting takes place, the emission ceases with the beating of the circulatory center.

DIAGRAM OF AN INCISED WOUND.

The danger consequent upon an incised wound is ever measured by the extent of the hemorrhage. When large arteries are divided, that fact is easily told by the size and the force of the jets sent forth. A strong horse may, from that cause, be dead in ten minutes. To enforce the difference between a lacerated and an incised wound, the reader is reminded of those painful cases, frequently recorded in the newspapers, where a limb is by machinery torn from a poor man's body, and scarcely a drop of blood marks the deprivation; also of death by severing a throat, when sensation ceases ere the stream has flowed forth. The last is an incised, the first is a lacerated wound.

DIAGRAM OF AN ABRADED WOUND.

An abraded wound, in its mildest form, is simply a graze. The reader will, however, remember how acutely painful such accidents always are. The horse's sufferings are not highly estimated by the generality of people; nevertheless, an injury of this description is not to be despised, even when witnessed on the animal. A broken knee, as it generally is exhibited, is nothing more than an abrasion. An abraded wound may simply mean that the insensible outer covering of the skin has been injured; it may also imply that the soft structures beneath have been sundered. Wounds of this kind are not free from danger when of magnitude. Little blood may flow, but the cutis is the most sensitive structure of the entire body. A needle's point cannot enter any part of the skin without sensation warning the person of a puncture. In human operations, division of the skin, or separation of the cutis, is known to constitute the major portion of the patient's agony.

The suffering attendant on the latter class of injuries is increased by almost every abrasion forcing grit or dirt into the substance of the cutis. This, of course, is generally washed out. The torture accompanying a large abraded surface is, therefore, very great; and horses when suffering from accidents of such a nature sometimes sink from the irritation consequent upon the injury. When the animals survive, the roots of the hair too often have been destroyed, and a perpetual blemish is the result.

A **punctured wound** is always dangerous; the hazard in this, as in every species of injury, is greatly increased when inflicted on parts liable to any vast amount of motion. Thus, punctures occurring over the stifle-joint too often set our best surgery at defiance. The muscles of the hind leg contract with every movement of the body. Added to that, the part abounds with fascia.

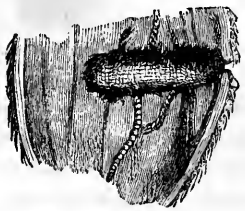


DIAGRAM OF A PUNCTURED WOUND.

The engraving supposes the soft parts to have been divided, in order to show the ragged nature and large extent of the injury, with the comparatively small opening by which this amount of harm is characterized.

The majority of these wounds heal by suppuration. Fascia is a substance no pus can penetrate, and which is more easily rent than punctured. The exit of the secretion, therefore, is opposed in many directions, while the ceaseless motion occasions the matter to burrow. The sinuses thus produced are by the fascia guided to the stifle-joint; and, when once the synovial cavity is polluted by the intrusion of the unhealthy pus, all the best efforts of science are useless.

When a punctured wound occurs, the skin, being elastic, stretches before the instrument by which the wound is inflicted. The soft parts beneath the skin, not being elastic to the same degree as the integument, break down before the penetrating force. They are torn or lacerated; for generally the muscles receive a larger injury than would be calculated from the size of the instrument by which the blow was inflicted. The rent flesh must be cast off by a slough—corruption generally attends that process. Much of the pus secreted cannot find an exit through the opening in the skin; a large portion of it is confined within the puncture. There it decays, and, being impelled by the motion of the limb, readily finds its way in all directions save the upward one.

No judgment approaching to accuracy can be formed at the first sight of a punctured wound. The probe may ascertain the depth of the injury, but it cannot tell the extent of damage done to the interior of the body. Therefore, whether the hoof is pierced by a nail, or the muscles are lacer-

ated by the shaft of a cart—be the instrument large or small—the consequences likely to follow upon the injury cannot be foretold.

A contusion, in its mildest form, is simply a bruise. Injuries of this class, when of magnitude, are very deceptive; the surface is unstained by blood, and there is no flesh exposed. For these reasons the ignorant are apt to disregard such accidents, and to express surprise when they terminate otherwise than kindly. When a bruise happens, blood is effused in smaller or larger quantities according to the extent of the injury. A small quantity of effused blood, sufficient to discolor the human skin, may be absorbed; but when the amount is large, the powers of nature are defied. The blood thrown out, not being taken up again, congeals, and ultimately corrupts. Then an abscess or a slough is necessitated; both are attended with danger: the first may be deep seated or superficial; either form is attended by much weakness. That generates considerable irritation, and may even be the cause of fatal hemorrhage; or it may lead to sinuses, the direction, the number, or extent of which, when they do occur, is not to be predicated. A bruise is, consequently, not to be judged of hastily. The amount of pain which it provokes is even unworthy dependence, as the injury may have hurt the bone or the tendon; and then, though the accident is rendered very serious, in the first instance no sign of agony announces the extent of the evil.

DIAGRAM OF A CONTUSED WOUND.

With regard to treatment, when a **lacerated wound** occurs, the first attention should be paid to the system, which has always been much shaken. Give, therefore, the drink composed of one ounce each of laudanum and sulphuric ether, with half a pint of water; repeat it every quarter of an hour till the shivering natural to the horse on these occasions has disappeared, and the pulse has recovered its healthy tone.

Avoid all poultices of the ordinary kind; one composed of one-fourth yeast and three-fourths of any coarse grain, excepting bran, may be applied. So also may a lotion thus composed:—

Lotion for Lacerated Wounds.

Tincture of cantharides	One ounce.
Chloride of zinc	Two drachms.
Water	Three pints.

Mix. Keep a rag constantly wet over the part.

Either will stimulate the parts, and probably prevent any tendency to unhealthy action. The yeast poultice produces this effect by giving off carbonic acid; the lotion accomplishes this intention by both its active

ingredients. Each is stimulating, also disinfectant, and will counteract any filthy odor which may attend the sloughing process; but the lotion is perhaps to be preferred, as it is more easily applied. When the slough has taken place, should hemorrhage ensue, dash upon the part jug after jug of the coldest water; or, should no very cold water be at hand, drive upon the mouths of the vessels a current of wind from the nozzle of the bellows. Continue to do this till the bleeding ceases, or until a surgeon can be obtained to take up the arteries.

The after-treatment is simple: apply frequently the solution of chloride of zinc, one grain to an ounce of water; that lotion will cleanse the wound and prevent unpleasant smells.

As respects feeding, this must be regulated by the character of the pulse. Should the beat of the artery be quick and feeble, no hay should be given; good, thick gruel should constitute the only drink excepting in extreme cases, when two pots of porter may be allowed each day. Good oats and old beans, both crushed and scalded, should then constitute the food, and the utmost gentleness should be exercised toward the animal.

Should the pulse be natural, allow three feeds of oats each day, as, in every kind of injury to the horse, more danger is to be apprehended from debility than from any excess of energy.

Incised wounds.—When these happen, always dash the part with plenty of cold water or blow upon them with the bellows. Place the horse in the nearest shed; motion promotes hemorrhage, therefore a walk is not to be hazarded. The bleeding being arrested—for, in severe accidents of this kind, there is no time to send for assistance—let the animal remain perfectly quiet until the exposed surface has become almost dry, but on being touched by the finger feels sticky. Then draw the edges together, and keep them in that position by means of sutures.

FIXED SUTURE NEEDLE: VERY USEFUL FOR INCISED WOUNDS OF NO GREAT DEPTH.

The best means of inserting these sutures is with a curved needle fixed into a handle. The handle is wanted to obtain the necessary power, and the needle's point should be sharp to penetrate the hide of the horse, which in places is of considerable thickness. The needle is thrust through the integument about one inch and a half from one margin of the incision; it is brought out about the same distance within the divided soft parts. It enters the opposite side of the sundered flesh even with the place whence it came forth, and afterward it appears through the skin about equally distant from the opposite edge of the

wound. There is a hole near the point of the needle; through this opening a piece of strong twine or narrow tape is threaded; when, the instrument being withdrawn, the twine or tape is pulled into the puncture which has been made. The needle is then released, the suture being left in.

So many sutures as may be necessary are thus inserted — in small wounds, these being about two inches asunder, but in larger injuries,

THE MANNER OF USING THE FIXED SETON NEEDLE.

A second person pushes the wound together, and, when the point of the needle appears, threads it with a piece of zinc wire or soft string. The needle is then retracted, and released from the wire or string, whereby a suture is left in the wound.

three inches apart. All are duly placed before any are tied; the whole being ready, the wound is forced together by an assistant, while the strings are fastened—care being exercised not to bring any of them actually tight, lest the motion of the body or the swelling of the part should drag the sutures through the flesh and thereby tear them out.

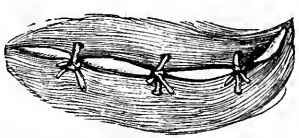


DIAGRAM OF SUTURES WHEN TIED AND LEFT IN A WOUND.

A wound thus united may possibly heal by first intention, or the divided parts, when brought together, may join, and give no further trouble to the surgical attendant.

Union by first intention is, however, somewhat rare in the horse; and should not that take place, suppuration will be established. So soon as the pus flows freely forth, and the sutures appear to tighten or drag, cut them out by snipping the twine; but allow the strings to loosen before you attempt their withdrawal.

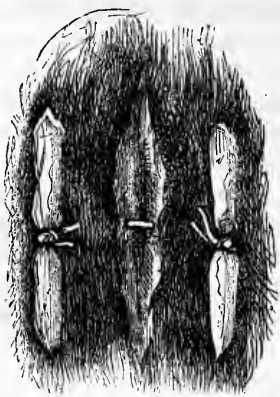
If this is not done, the sutures will speedily find an exit for themselves by causing the flesh against which the tension acts to be absorbed; thus the original injury will be rendered more complicated, and the ultimate blemish must be altogether greater.

All that is required after the establishment of suppuration is to bathe

the part with the solution of chloride of zinc, one grain to the ounce of water. This lotion will suppress any fetor, and gently stimulate the healing process, as well as prevent the sprouting of fungoid granulations; it is necessary also to attend strictly to the directions laid down for feeding during the curing of wounds.

No. 1.

No. 2.



TWO KINDS OF SUTURES RARELY EMPLOYED UPON THE HORSE.

No. 1. The continuous suture, which is employed for sewing up portions of bowel when the intestines are injured and exposed.

No. 2. The deep suture or the quill suture. In the horse pieces of wood are substituted for quills. The wood is notched in the center; and upon the indentations the sutures are fixed, to prevent the movements of the animal from displacing them. It is sometimes employed to bring the sides of deep and gaping wounds closer together.

The treatment of an **abraded wound** chiefly consists in cleansing the surface with plenty of cold water, which should be allowed by its own weight to wash off any loose particles of dirt. No cloth or other aid should be employed to scrub the living flesh as though it were an insensitive board. The matter which cannot be removed by simply sluicing, had better remain to be expelled by the secretion of pus. The horse, especially when terrified, endures pain very badly; indeed, the animal is so timid and so delicately framed that it is always good surgery to spare all unnecessary suffering.

Support the body with laudanum and ether drinks, one ounce of each to the pint of water, as often as they may be needed. Let the food be generous, unless fever should arise, when the directions already given must be attended to.

Punctured wounds require only one kind of treatment, whether a nail be driven into the flesh of the foot, or the shaft of a cart be forced into the substance of the thigh. Here the knife must be employed; and, unless the animal shows evident symptoms of excessive weakness, it is better, perhaps, to operate while the parts are partially numbed by the

shock, than to wait until a morbid sensibility is provoked. Always enlarge the opening; do this in the foot by cutting away the horn of the sole around the small puncture left by the nail. When the soft parts are penetrated, probe the wound first; then, if possible, insert a knife to the bottom of the puncture, and, with the edge downward, draw it forth. By this means a wound resembling a subverted < will be instituted. It will be narrowest toward the extremity, and widest at the mouth. A free opening affords a ready egress for all sloughs and pus. It materially aids the healing process, and effectually prevents the establishment of sinuses; while the clean incision left by the knife is of small import, when taken into consideration with the other consequences of a punctured wound.

Support the animal if necessary, or regulate the food by the symptoms.

A **contused wound**, when slight, may be rubbed with the iodide of lead ointment, one drachm of the active agent to the ounce of lard; when all enlargement will sometimes subside, and the effused blood may be absorbed. However, the horse commonly receives injuries of magnitude. In the last case, take a sharp knife and draw it along the entire length of the swelling. Make a long gash, only through the integument, at every eighth inch, and be careful to carry the knife through the integument, or to the lowest portion of the detached skin. Any sac that may be left is certain to retain corruption, and may produce fearful after-consequences. The attendant measures consist in bathing the contusion with a lotion composed of chloride of zinc, one grain, water, one ounce, and diminishing the food or supporting the body as nature demands such treatment.

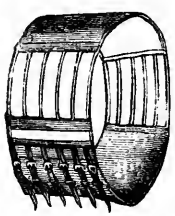
The after-treatment of all injuries consists in keeping any external orifices open till all sloughs and pus have disappeared. In surgery, a large and depending opening, by means of which the interior may drain, is always to be preserved, and the knife, to this end, may be employed so often as the healing process threatens to prematurely close the wound.

Formerly it was the practice to bleed after every injury; this was done to prevent fever. However, observation has shown that the vital powers are more often weakened than increased by the shock attendant on severe accidents. Whenever the contrary happens, it is far better to lower the pulse by repeated doses of aconite, than to abstract that which will subsequently be necessary to repair injury.

It was also once the custom to fill wounds with tents or lumps of tow, and to bandage every injured part. These habits only served to confine that which nature was striving to cast out. They consequently did much harm, and are now happily discarded.

A piece of loose rag, saturated in the oil or the solution of tar, should, during summer, be suspended over the mouth of every wound, to keep off the flies. The only tent which the author approves of is when an incised wound happens where assistance is far away, and difficult to procure. Then, to arrest the hemorrhage, let the horse rug, a man's coat, or anything else be violently thrust into the gash, and forcibly held there until proper assistance can be obtained.

Such is the present method of treating wounds; this to the reader may appear very cruel; but could he have walked through and have inhaled the atmosphere of the wards in hospitals appropriated to such injuries as they existed in former times, he would thoroughly understand that apparent want of feeling is, in reality, the height of charity.



A BANDAGE DESIGNED FOR WOUNDS ON THE TRUNK OF THE HORSE.

To conclude this part, the author lays before his readers the following bandage, intended to meet an inconvenience hitherto experienced when a horse has the walls of the abdomen punctured. The constant motion of the part renders ordinary sutures of no avail, and for that reason bandages, unless so tight as to check circulation, are of little use. The annexed is made like a broad belt, and is buckled round the body. The bars are composed of vulcanized India-rubber; they will yield to the movements of the abdomen, and yet serve as sutures supporting any pendant flap, while at the same time they will allow the wound to be dressed without disturbing the bandage. They also offer the advantage of permitting the attendant to pull one support aside without removing the whole.

Every part in the horse subjected to much motion when wounded, should have an adhesive plaster placed over it, and retained there until the suppurative action is confirmed. By this means is excluded the atmosphere, which, when this precaution was neglected, has entered the wound, penetrated between the muscles, and by distending the body increased the suffering, as well as led to the worst of consequences.

Wounds in veterinary surgery rank among the most formidable cases with which the practitioner has to contend. They are not so because the flesh of the horse is slower to heal than that of the human being. Indeed, the scale in this respect inclines toward the animal; but they are rendered slow to heal and difficult to cure by two causes. The horse is always impatient of restraint; any effort to confine the creature is more likely to provoke dangerous resistance than to induce the slightest symptom of amendment. The quadruped naturally delights in motion. It was formed for activity. Even when in its stall the body is never abso-

lutely still; the position is being changed; the legs are frequently stamped; the head, eyes, ears, and tail are never quiet. This innate quality retards the union of sundered flesh. It favors the gravitation of pus between the muscles, and thus generates sinuses. These are the torments of veterinary surgery. Could the sinus be anticipated, or in all cases eradicated, the principal difficulty would be removed; but intelligent as the horse is, it proves impossible to make the animal comprehend the necessity for quietude. Hence any trivial accident may lead to injuries of so extensive a character and so malignant a nature as will set the best endeavors or the most consummate skill at defiance.

CHAPTER XV.

OPERATIONS.

THE veterinary art is by no means rendered more successful by the cunning of its stratagems. Many of its objects are accomplished after the rudest and the most primitive methods. Not one, perhaps, is more

THE PRESENT MANNER OF CASTING A HORSE FOR OPERATION.

coarse than the present method of casting or throwing an animal previous to an operation. The reader has only to ask himself what condition the body must be in when, with the sight blinded, it is suddenly jerked to the earth; and how far it is fitly prepared by so violent a practice to be submitted to the knife of an operator?

There are few operations in veterinary surgery which a person of moderate nerve and average intelligence might not himself perform. The author has seen gentlemen with titles, and others holding high rank in the army, indulge in the strange pleasure of singeing living flesh with the heated iron. But he has never beheld horsemen handling the knife. The latter would better become their hands than the first severe and disfiguring instrument, which, however useful it may have been found in

certain cases met with in human surgery, nevertheless would be well abolished from veterinary practice, because of its indiscriminate abuse. Firing is employed for every and for no reason. Now recourse is had to it because the joints are weak. Then it is adopted because a gentleman is fond of seeing his horses scored. Next, it is used to gain time, and thus prolong the treatment. Generally it is brought forward because the practitioner does not know what else to do. Lastly, it is esteemed the crowning measure of routine practice.

The author, however, has never been necessitated to resort to so violent an agent. It is a most unseemly ornament in unprofessional hands; in this book, which is intended for the general public, the use of the firing-iron is altogether omitted.

The knife, especially to the animal, is the most humane of remedies. It often affords instant or immediate relief. The animal seems to suffer more from the restraint imposed than from the wounds inflicted. The chief sensation, with all forms of life, resides in the skin; so that the integument be quickly and effectually divided, the soft parts underneath have but little feeling. The interference with these last rather produces faintness or sickness than acute suffering; the knowledge of which fact will embolden many a humane person, though the writer trusts it will not be credited by all who are of an opposite character, since boldness, unrestrained by humanity, only renders the individual a savage without the savage's excuse.

Such operations as embriotomy, castration, and lithotomy are intentionally omitted, from a conviction that no gentleman would undertake them; and because, in every instance, they had better be intrusted to a regular veterinary surgeon.

Before undertaking any operation, always reflect on what you are about to do, and make up your mind how you design to do it. Irresolution causes more suffering than the most perverted determination can inflict. It is always well (however much in practice the operator may consider himself) to first perform the intended operation upon the dead subject. This is a custom which the writer invariably adopted; and frequently it has supplied his memory with a refresher which, in the hurry of practice, was found a most timely warning.

Never use small knives. Such things look pretty. The sight of a large blade may appear very ugly; but it does at one movement that work which an instrument of notching smallness would not in twenty hacks accomplish. Understand thoroughly that which you are about to perform, and always choose the tool likely to get through the business quickly. Periosteotomy cases were formerly sold by veterinary instrument makers which contained a knife of moderate doll's dimension. The

writer, to accomplish the purpose which that little knife was specially made for, was accustomed to employ a bistoury larger than those in ordinary use among gentlemen of his profession.

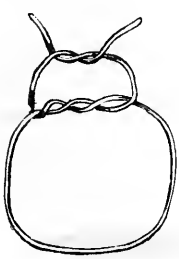
Where you anticipate much bleeding, always endeavor, if possible, to divide the main artery with the first incision. This is by far the most humane, and therefore the safest practice. The vessel, being divided, can be taken up, and all further flow of blood thereby checked. But if the artery be left to the last, it remains to fill the smaller branches. These are of necessity frequently severed. Each, as it is cut, bleeds more or less freely; thus the hemorrhage is far greater, and the operation far more difficult, than if the main trunk had been secured at the earliest possible period.

Always tie both ends of an artery; because, though the main stream flows through that portion of the vessel nearest the heart, yet the other half, being fed by the smaller trunks, and the current having a tendency to regurgitate, a considerable quantity of the vital fluid may flow out of the mouth, which, in general opinion, has no medium of supply.

If, during an operation, you make an accidental incision into a vessel, either take it up, (which is the better way,) or cut it short off when there is a chance of its retracting and of the bleeding being thus arrested. Vessels of large size may, when requisite, be excised and tied; the vital current being afterward carried on by the dilatation of the lesser ducts.

To tie an artery it is imperative to secure the end of the vessel; this, if possible, should be accomplished with the forceps. When the mouth of the vessel is much retracted, it may be necessary to employ the knife; but that practice should be viewed only as the last resort of the proficient surgeon.

The end of the artery being fixed and drawn forth, a piece of strong silk, thrice twisted, (after the method represented in the inferior circle of the annexed illustration,) is passed over the vessel. The silk is then drawn tight, and will generally remain fixed. However, sad accidents have occurred by operators trusting to so doubtful a security; for that reason it is always advisable to make another twist, (as shown in the smaller circle of the illustration,) which will render the knot secure.



THE LOUP BY MEANS OF WHICH THE ENDS OF ARTERIES ARE SECURED.

Even a vessel of the second magnitude may be obliterated, as the carotid artery or the jugular vein, without life being necessarily sacrificed. However, it is always well to spare these parts, or when either is lost to arrange so

that the absence of them may entail the least possible inconvenience upon the animal. Thus, if the carotid artery be lost, place the food low down, and thereby aid the flow of blood to the head. If the jugular vein be destroyed, then put the fodder high up, that the current from the head may be facilitated.

Never, on any account, remove any portion of skin which is not involved in some fearful injury, or separated from its attachments by the action of disease.

Skin is the part of the body which is never reproduced, and even the place whence it is absent always heals slowly. However loose the skin may appear, however disproportioned it may seem after some tumor has been removed, respect every particle of it. Before the wound can heal, inflammation must set in. That process ended, the skin, under its action, will have contracted, and in the end there will be only sufficient integument to cover the part; whereas, if the slightest amount be excised, to such an extent there will for a long time remain a gaping sore.

Never spare the knife. Think well before you touch that tool; but, having it in hand, assure yourself its edge is sharp, and never do at two cuts that which might have been accomplished in one.

Always slit up a sinus where such a proceeding is possible. When the sinus is too long, supposing the pipe to take an internal direction, as from the withers to the chest, insert a seton with the guarded seton needle, a representation of which is given below.

THE GUARDED SETON NEEDLE.

The blade of this instrument is generally about two feet long. Before using it, the cutting head is always retracted by pulling back the nut at the extremity, and securing it in its place by means of the screw situated on the middle of the handle. The blade then reposes upon a blunt companion, and may with impunity be inserted down any sinus or false canal. Having reached the bottom of the pipe, and all important vessels being passed, the screw is loosened, and the projecting end of the blade at the extremity of the handle is struck forcibly, when the sharp point is driven forward, and this pierces the flesh.

THE SETON NEEDLE PROTRUDED, AND SECURED WITHIN THE HANDLE BY MEANS OF A SCREW.

Behind the cutting head there is a free space. Through that opening a long piece of tape is threaded, and the instrument is withdrawn, pull-

ing the tape into the sinus, in which it remains. A knot is made at either end of the tape; thus a seton is with safety placed in situations where the depth to be penetrated would defy ordinary measures, and the vessels to be passed would render such measures more than doubly hazardous.

The use of a seton is to act as a drain, or to stimulate an unhealthy canal—to provoke a sinus to secrete healthy pus, instead of a thin and often a foul discharge—and thus to cause the diseased pipe to heal or to become obliterated.

When operating, always make your first incision through the skin rather too large than in the least too small; remember, the division from within outward occasions much less pain than the separation, made after the ordinary fashion, from without inward.

Never spare hair; the substance is readily reproduced. It can be wished to be spared only to conceal the fact of an operation having been performed. Always refuse to become a party to dishonesty. Do what is necessary for the proper performance of your office. The removal of hair, which may otherwise interfere with your sight, is essential: therefore cut it off, regardless of any wish to the contrary.

Instruct your assistants beforehand how to cast the horse; leave that business to them: never meddle yourself. The writer has seen veterinary surgeons, in their operating dresses, push and haul with the utmost energy. Such silly people have doubtless thought themselves exalted by this exhibition of violence. It would have been more to their credit had they devoted half the energy to teaching their people beforehand. But in what condition must their hands and temper be after having taken a lead in a struggle with a horse for mastery!

A surgeon should always be cool. His head should direct his hand; his knife should be held lightly; his eye should be quick, and his mind prepared to meet any accident. He should do his office neatly, and, if possible, without soiling his person. The ripping cut and the bloody hands alone distinguish the ignorant butcher from the scientific operator.

During every operation enjoin the strictest silence upon the spectators. The horse is never vicious, but it is always timid. Sounds have a powerful effect upon animals which cannot understand speech. Every word uttered, even in a whisper, should be of assurance to the sufferer; for the horse is only to be feared in its efforts to escape from some supposed peril. It becomes mad in its alarm. It then puts forth its strength and exerts it without regard to consequences. Man has everything to hope from the fortitude and noble forbearance of the creature. It responds to kindness with something more than submission; it answers sympathy by the most entire confidence and utter dependence. The life, the feeling, the natural powers are all subservient to the great love which

is embodied in a horse's attachment. There is not among created beings one which has so large a sympathy; the horse must attach itself to something; to love seems essential to its being. The stable in which it is captive the patient prisoner learns to regard, as it were, a palace. The pace is always more willing when returning to captivity; freedom has no charm; the field has no allurement to the horse which has lived any time in the most crimped, confined, and uncomfortable of stalls. It will quit the spring grass to be fastened once more in the place to which it has been accustomed and has grown attached.

Then, however much removed from itself, it must pour the richest of its affections on some animal, should man, in pride, refuse to accept the offering. Creatures the most opposite have been the horse's favorite. How often do we hear of the liking formed between a goat, a dog, a cat, and the horse! Love has a strange freemasonry of its own; how else can we account for the larger creature being able to make its longing understood by the smaller life? There may, however, be between animals some substitute for language; but we can hardly suppose any recognized signs exist between birds and the equine species. Yet a famous animal-painter had a pony which formed a violent and lasting affection for a bantam cock. These two used to march side by side up and down the field in which the larger animal was confined; for so very expansive is the horse's love that it will embrace not only its abode, but some life, however distant apparently from its own.

The voice of the person who is accustomed to groom and feed the animal, if he has been only ordinarily humane in the performance of his office, will at all times reassure the beating heart of a prostrated horse. But vast injustice to the animal's better qualities is done by the mode of casting it. It is violently jerked off its legs; by a sudden pull it is thrown "with a burster" upon its side. There it struggles. If mastery sides with the animal, then let the men be speedy in their flight. The quadruped, in its fear, designs no harm to any person. It means only to escape from the terrible danger which encompasses it. Still, it is regardless in its alarm, and may do more injury than the most evil intention could accomplish. There is an engraving of the method of casting horses commencing this chapter. Let the capable reader imagine the effect produced upon the timid quadruped when it is violently flung upon the earth with a sound well denominated "a burster."

The horse is much better made to lie down gently, after the method adopted by Mr. Rarey. Half, and far more than half, the terror excited by an operation may thus be avoided. The confusion and bustle, conjoined with violence, which naturally attend "casting," must make a lasting impression upon the retentive mind of the animal, and, we may

suppose, must aggravate the pain, thus materially endangering the result of an operation. The hobbles may be fixed quite as readily when the horse is down as when the animal is standing. Nay, they may be fixed more readily, as the horse, when down, has lost three-fourths of its power.

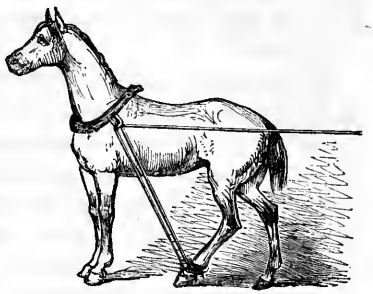
Mr. Rarey's method of throwing the most unruly animal is thus described by that gentleman :—

"Everything that we want to teach the horse must be commenced in some way to give him an idea of what you want him to do, and then be repeated till he learns it perfectly. To make a horse lie down, bend his left fore leg and slip a loop over it, so that he cannot get it down. Then put a surcingle around his body, and fasten one end of a long strap around the other fore leg just above the hoof. Place the other end under the surcingle, so as to keep the strap in the right direction ; take a short hold of it with your right hand ; stand on the left side of the horse, grasp the bit in your left hand, pull steadily on the strap with your right ; bear against his shoulder till you cause him to move. As soon as he lifts his weight, your pulling will raise the other foot, and he will have to come on his knees. Keep the strap tight in your hand, so that he cannot straighten his leg if he rises up. Hold him in this position, and turn his head toward you ; bear against his side with your shoulder—not hard, but with a steady, equal pressure—and in about ten minutes he will lie down. As soon as he lies down he will be completely conquered, and you can handle him as you please. Take off the straps, and straighten out his legs ; rub him lightly about the face and neck with your hand the way the hair lies ; handle all his legs ; and, after he has lain ten or twenty minutes, let him get up again. After resting him a short time, make him lie down as before. Repeat the operation three or four times, which will be sufficient for one lesson. Give him two lessons a day ; and when you have given him four lessons, he will lie down by taking hold of one foot. As soon as he is well broken to lie down in this way, tap him on the opposite leg with a stick when you take hold of his foot, and in a few days he will lie down from the mere motion of the stick."

What prevents the hobbles being buckled on? What prevents all necessary arrangements being carried out? What, indeed, but the stubbornness inseparable from ignorance! Veterinary surgeons, as a rule, are not an educated class. In proportion as their information is limited, so is their adherence to established custom likely to be intractable.

There are, besides the hobbles, two other inventions designed to limit the capability of resistance. One is the side line. A soft collar is put over the horse's head and a hobble is fastened to the foot it is desired

to have elevated. From the collar is dependant a metal loop, ring, or other contrivance. By the side of this a strong rope is attached. The cord is then passed through the D of the hobble; afterward it is brought back and ran through the side ring or loop. A man then takes hold of the end of the rope, and, by gradual traction, causes the leg to be advanced. It is neither wise nor humane to drag the foot off the ground. A horse which will stand quiet with both feet resting on the earth, is rendered restless when one leg is fastened in the air.



THE SIDE LINE.

The occasion which makes it imperative to apply the side line is, when the hocks or hinder parts are examined. Many unbroken horses, though quiet in other respects, will not allow these portions of the body to be touched. By causing one leg to be advanced, the other is deprived of all power as a weapon of offense. The horse would obviously fall, if he were to project the only free hind member; and the timidity of the creature indisposes it to incur so vast an indignity.

The other invention is the double side line. A rope is fixed to a loop on either side. The loop or ring is attached to a soft collar. The rope is afterward threaded through a hobble on each pastern. Both legs are then gently pulled forward, and the animal, having its posterior supports drawn from under it, comes to the earth. The ropes are held tight while the horse is turned upon its back. The instant it is in that position, somebody seats himself upon the head, while the body of the animal is propped up by numerous trusses of straw.

THE DOUBLE SIDE LINE.

This last is but an imperfect method of casting. In general it is rendered still more cruel by the abuse to which it is subject. The ropes are commonly pulled with an utter disregard to the living body upon which they operate. The hind legs are often drawn to the shoulders, and frequently additional cords are employed to make the poor

creatures more distorted and more fixed. Has man any cause to wonder at a horse being occasionally what is called "vicious," when the unreasoning creature is thus fearfully operated upon? Is it not rather a proof of the horse's intelligence that it can recognize the cause of its suffering, and study ever after to repel its tormentor?

Let the horse be thrown down after the admirable method introduced by Mr. Rarey. Let it then be hobbled, and never, during the operation, hear any sound but soothing accents. Animals do not understand words, but they are quick readers of characteristics. The language itself these creatures may not be able to literally interpret; but they comprehend all which the manner conveys. When kindness is expressed, the meaning is felt, though the verbiage be lost: it is astonishing how animals will enter into the intention of speech! How home kind language seems to go to the ignorant heart, and how true it is that a gentle word is never thrown away! It is surprising to observe the affection by which the human race is surrounded; they live and walk among animals eager for permission to adore them, anxious to love and to serve them; but it is lamentable to see how an evil spirit repels the feeling which pervades all nature.

There is another point upon which the writer presumes to offer advice. Veterinary surgeons display ignorance in nothing more than in being servile copyists. They do not view their sphere of science as a separate and distinct branch. They always will strive to follow the example of human practitioners even to particulars. There is no difference in the dissecting knives used at the King's College and the Royal Veterinary establishment, though bodies of different bulks are studied in each school. The operating knives of most veterinary surgeons are ridiculously small for such purposes. The consequence is, the animal is much longer down than is absolutely necessary. The author has known one hour employed in dressing a quittor; whereas six sinuses ought to be laid open and dressed in less than five minutes. A vast deal of time is thus wasted; although the opposition to Mr. Rarey's method of throwing will, doubtless, be the length of time it would occupy. However, granting the objection; which is the surgeon bound to consider—the welfare of his patient or his own convenience? It is not every day that the gentleman who enjoys the largest practice has to cast a horse. It is, in fact, a somewhat rare and an exceptional occurrence. Could not the most engaged man devote an occasional half hour to the benefit of his profession?

When operating upon living flesh, always have your knives rather too large than in any measure too small. The work is performed quicker; besides, the hands are kept at some distance from the wound, and the

eyes thereby are enabled to direct their movements. The probability of mistakes is thus lessened, and no man, with a knife in his hand and bleeding flesh under his eyes, has a right to expose himself to the possibility of an error. which, of course, is not to be erased or atoned for.

Should a horse, when under the knife, struggle, do not attempt to contend with the animal. Immediately leave hold of your instruments, and withdraw your person out of danger. Allow your knife, etc. to remain; it will seldom be displaced, or, if cast out of the wound, can be easily reintroduced; whereas, did you endeavor to snatch away or to retain your hold, the most lamentable consequences might be the result.

Another caution, and this part of the writer's office is concluded. When you operate upon a leg, have that limb uppermost, unless your incision is made upon the inner side. Have the foot placed upon a pillow or sack stuffed with straw, and a strong webbing put around the

hoof. The webbing give to a man who is to pull at it. The dragging sensation renders the horse inclined to retract the member; therefore place yourself in front of the limb, or on the same side as the man who holds the webbing. The fore leg, when advanced, cannot be readily employed as a weapon of offense, and the hind limb is always, when used in defense, projected backward.

OPERATIONS—TRACHEOTOMY.

This operation is, perhaps, the most humane recourse of veterinary surgery. Neurotomy may save the horse from greater and longer suffering; but **tracheotomy** is performed, unlike the former operation, upon an animal in an unconscious state. Difficult respiration, either from tumor pressing upon the larynx, infiltration upon the lining membrane of the larynx, or choking from various causes, produces imperfect

oxygenation of the blood. The vital current being impure, of course the brain which it nurtures is not in a condition of health or activity. The consciousness is impaired or altogether destroyed; and immediate relief is experienced after the performance of the operation. The recovery is as rapid as the previous symptoms were alarming. The altered aspect of the animal is as though the body were resuscitated. In certain cases, where every breath is drawn in pain, the ease afforded by tracheotomy is most marked. It makes little difference to Nature, by what means the air is inhaled, so that a sufficiency of diluted oxygen come in contact with the absorbing membrane of the lungs. This, when the larynx is closed or diseased, tracheotomy permits to be accomplished. It is equally beneficial, safe, and humane. However ugly its description may read, it is in practice to be strongly recommended.

The general fault with veterinary sugeons is the delay which commonly pushes off the operation to the last moment. In this delay the proprietor is, perhaps, equally or even more at fault. Hope leads the owner on to the very last, and even then it is with reluctant horror that consent is given "to cut the horse's throat." Such is the term by which certain practitioners characterize tracheotomy; and though it is uttered merely as a joke, yet it creates an impression which acts against a harmless operation.

In agricultural districts, the veterinarian is frequently knocked up at night by a messenger, who announces "Farmer Hodges's horse be a dying." The farmer may live several miles off in the country; and the reluctant sleeper hurries on his clothes to obey the implied summons.

In due time the pair reach farmer Hodge's homestead. It needs no finger to point out the stable. The sound of laborious breathing effectually notifies it. However, the practitioner, upon entrance into the place, is horrified to find himself there with no better company than a boy and a rapidly-sinking animal. The circumstances demand other assistance. The horse doctor cannot help giving voice to his requirements. The lad hearing this, says hastily he will fetch somebody very soon—hangs up the lantern and vanishes into the darkness.

Minutes pass and no footfall greets the ear. The divisions of the hour are struck by the village church, and still no sound of returning steps. The animal becomes worse and worse. In its disabled state it fears to lie down, as that position impedes the breathing. In its efforts to stand, it reels about—now falling to one side and then to the other. Yet the departed messenger does not return. The veterinarian finds the limits of delay are passed: ten minutes more and the quadruped will be down. He takes out his lancet. One foot from the breastbone, and as near the center of the neck as the rocking motion of the

horse or the flickering light of the lantern will allow him to aim, he plunges the blade deeply into the flesh, if possible at one cut dividing the cartilages of the trachea. He has little control over the incision. Frequently a gash results from the tottering of the animal. Mostly he divides more than he would have done had daylight and assistance been afforded him.

The incision being made, the fingers are thrust into the wound to keep the division open. At first this may be difficult; but as time

TRACHEOTOMY, AS PERFORMED UNDER DIFFICULTIES—A COMMON OCCURRENCE.

proceeds, the standing of the horse becomes firmer and the breathing less noisy. The veterinarian is, however, impatient at the delay and his enforced position. He is just beginning to despair, when the messenger returns, accompanied by a sleepy companion. Both are surprised at the condition of the horse, and, not observing the wound, imagine the animal has been cured by magic. However, to the demands of the equine medical attendant, nothing like a tracheotomy tube is to be invented. At last the spout of the tea kettle is thought of; and the good dame awakens in the morning to find her kettle demolished and its spout thrust into the "plaguy horse's throat."

It is the curse of veterinary surgery, that nobody appears to understand when an operation is required. The practitioner, therefore, is seldom prepared for its performance. The circumstances allow him little time to think, and none to return or to fetch the necessary instruments.

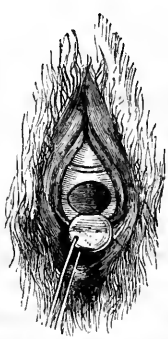
However, when he has proper time and choice, he should always make a free incision through the skin and panniculus carnosus. Make this opening about one-third up the neck, measuring from the chest. It

is more general to open the windpipe at a similar distance from the jaw, and, assuredly, the superior incision has this advantage, that there is less to cut through. But where no important nerves or vessels are endangered, surgery cares little about the depth of a wound, the chief attention being given to the probable after-consequences.

The superior portion of the neck is especially the seat of motion; it varies with every turn and movement of the head. Hence the end of the tube is apt to be brought into constant contact with the lining membrane of the trachea, and horses have been slaughtered with huge tracheal abscesses, to all appearance produced solely by wearing the tracheotomy tube.

To avoid this danger the author chooses for incision a spot nearer to the chest, where the motion is less constant and not so varied. Even at this last place all danger is not entirely surmounted, in consequence of which a horse, while wearing a tracheotomy tube, should never be permitted to feed from the ground.

DIAGRAM, SHOWING THE STRUCTURES TO BE INTERFERED WITH DURING THE PERFORMANCE OF TRACHEOTOMY.



THE MANNER IN WHICH THE CARTILAGES OF THE TRACHEA ARE TO BE EXCISED.

1. 1. The sterno-maxillares muscles—a pair—have to be separated, being joined by fine cellular tissue.
2. The sterno-thyro-hyoidei muscles, lying under the first pair, also have to be divided, being similarly united.
3. The trachea, which is fully exposed when the above muscles are disunited.

At the commencement, when the operator has leisure, he generally does not cut too deep. The first incision fairly divides the skin and panniculus carnosus quite in the middle of the neck, and is rather longer than a by-stander would deem to be absolutely necessary. The elasticity of the skin will somewhat shorten the opening, while the torture of

repeated enlargements will be avoided, and the more important structures beneath the skin will be fairly brought into view.

In the center of your division will appear two long muscles, joined together by a fine cellular union; that union you are to separate; it consists only of cellular tissue, and will necessitate more care than exertion. Underneath the divided muscles will be found two others, smaller and paler, but also joined together by means of fine cellular tissue. These are also to be sundered, and then the trachea lies exposed. There is neither nerve, nor artery, nor vein to avoid, nor to take up in the performance of tracheotomy. All consists in making your primary incision large enough, and, subsequently, in not attempting more than the division of two pairs of muscles.

The commencement of the incision should be made at the spot already indicated. After the skin is cut through and the muscles are divided, two assistants should be obtained to hold them back, while a circular piece is excised from the cartilages of the exposed trachea.

The trachea is formed of numerous cartilaginous rings each half an inch wide, but so united by elastic tissue that the whole forms one continuous tube reaching from the head to the chest of a horse. If possible, only two of these rings are to be interfered with; that is, a half circle should be cut out of each, which, with the elastic connecting medium, will make an opening of one inch in diameter. Both the rings, however, should be perfectly divided; but a half circle should be excised from one, leaving a portion of cartilage to keep the remainder in its place. This matter, probably, may be made more clear by the engraving on the opposite page.

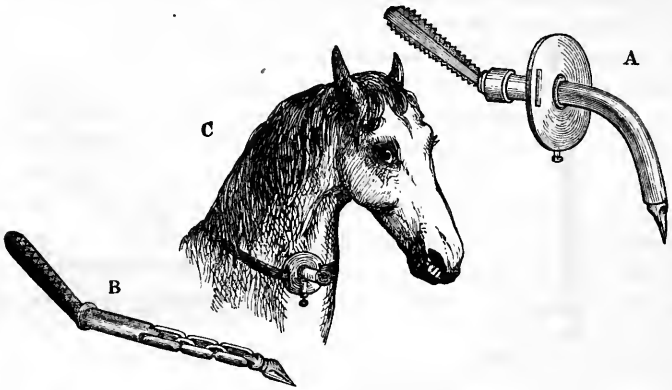
After the first half circle is made, or when a portion is cut off the first cartilage, that piece should be bent outward. The elastic connecting substance will readily permit this to be done, and the current of fresh air admitted will considerably refresh the animal. The cartilage being bent outward, it should be leisurely transfixed by means of a sharp needle armed with strong twine. The string may be fastened to the button-hole of the operator's waistcoat, and afterward the circle be leisurely completed.

The twine is necessary because the spasmodic breathing has drawn the excised portion of cartilage upon the lungs, and thereby done as much mischief as the operator designed to do good. By bending the half circle outward, some relief is afforded to the breathing, and the character of the respiration partially benefited. The process is, however, rendered more safe by the employment of the loop; but care should be taken, when subsequently using the knife, not to cut the string. Therefore, before the circle is completed, the cartilage should be bent back-

ward, as shown in the previous engraving, then laid hold of, and, when firmly grasped, the excision ought to be perfected.

A tube has to be worn afterward; this is put into the opening, and fastened in by means of a strap or tape passed round the neck. There are many tubes sold by the instrument makers for this purpose; the majority, however, are far too large. None should be beyond one inch in diameter. The horse only requires to inhale part of the air through the canula, the remainder coming, as before, through the larynx. A free space of one inch is, therefore, plenty to admit the deficient oxygen; for no animal could live through an operation, were air, previous to its commencement or during its continuance, altogether excluded.

The best instrument for hasty and temporary tracheotomy is the invention of Mr. T. W. Gowing, of Camden Town. To insert this canula no cartilage need be excised; a puncture is made with a knife



MR. T. W. GOWING'S TRACHEOTOMY TUBE.

A. The canula, with a shifting shield, armed with the pointed trocar.
B. The trocar withdrawn from the canula, showing its peculiar construction.
C. The canula fitted into the horse's trachea, showing how the movable shield may be adapted, by means of a screw, to the size of the horse or the swollen condition of the parts.

through the connecting medium of the tracheal rings, and through this puncture the tube is driven. It is of all use for temporary or immediate service, but obviously would not do for a continuance.

The objection to tracheotomy, when designed to last for any period, is that the canula, by irritating the lining membrane of the larynx, is apt to provoke abscess, which impedes the breathing to a degree that destroys the life. The author has seen some fearful instances of this effect; but of all tubes, that invented by the French seems to be least open to this objection.

OPERATIONS—PERIOSTEOTOMY.

This operation was first applied to the horse by the late Professor Sewell. It is intended to relieve the lameness consequent upon exostosis

A PAIR OF ROWELING SCISSORS, FOR MAKING SMALL INCISIONS THROUGH THE HORSE'S SKIN.

A SETON NEEDLE ARMED WITH A TAPE, A, AND FIXED INTO A HOLLOW HANDLE BY MEANS OF A SCREW, B.

situated on the shin-bone. A pair of roweling scissors are first employed to snip the skin above and below the tumor. Then a blunt seton needle,

A BLUNT SETON NEEDLE.

A TUMOR BEING CUT WITH A PROBE-POINTED KNIFE.

being fixed into a hollow handle by means of a screw, and armed with a tape knotted at one end, is to be used. The needle is violently driven through, and breaks down the cellular tissue which attaches the skin to the tumor. The point is forced to enter at one snip and come out at the other, after which the needle is withdrawn by the first opening. A probe-pointed knife is then introduced into the space thus made; the tumor is sliced into as many pieces as may please the operator or the nature of the growth will admit of. The knife is afterward retracted, and the needle, released from the handle, is passed through the openings, or in at one snip and out at the other. The knot at the end of the tape prevents that being drawn after the needle. The unknotted end is next withdrawn from the needle and tied into a large knot—the whole forming a seton. The operation is occasionally varied by smearing the tape with terebinthinate of cantharides, and sometimes by blistering over

tumor, seton and all. This last practice may add to the severity of the operation, but it seems calculated to do little good. Breaking down the attachment of the skin and slicing the tumor appear designed to deprive the growth of blood, while a blister seems calculated to draw to the part an excess of that which the operation was intended to dispel.

A HORSE'S LEG WITH TWO SNIPS UPON IT, C C, OUT OF WHICH HANG THE TWO KNOTTED ENDS OF A SETON, D D.

Periosteotomy is not very highly esteemed by the vast majority of practitioners. It is, however, sometimes very successful. A horse is thrown, being dead lame; the animal gets up from the hands of the surgeon and trots sound. It is difficult, however, to predicate the quadruped on which it will thus act. Certainly the operation is best adapted to young horses; but even to all of these it will not prove beneficial. It is therefore looked upon as a surgical experiment, quite as apt to disappoint as to please. The seton, moreover, is disposed to cause the edges of the holes through which it passes to indurate. A blemish which it takes some months to eradicate is the consequence; and this, added to the expense attendant upon treatment, is not apt to prove pleasing to horse proprietors, especially when the operation altogether fails.

A modification of periosteotomy might perhaps be tried. Omit the seton altogether; make an inferior snip with the scissors; introduce a sharp-pointed needle, and cut a channel. Then insert a probe-pointed bistoury, and incise the tumor. If periosteotomy were to prove successful, it probably would be so in this shape. The author has seen small benefit result from the after-use of the seton, and by operating in the manner proposed all the subsequent blemish would be avoided. The cut would soon heal and leave no scar behind: thus the grand objection to the performance of periosteotomy, as it now stands, would be removed.

The motive for the above proposal is to spare the suffering of the animal. If the hair is cut short previously, and pressure made above the snip of the scissors, the wound need occasion little pain. A sharp point cutting its way through the cellular tissue would not cause one tithe of the agony which follows the use of a blunt instrument necessarily tearing, stretching, and breaking a passage through a living body. Cartilage or bone in a state of health has small sensibility. The employment of the knife would therefore provoke no struggle, while all the after-torture of a seton applied directly to the surface of a wound would be avoided.

Perhaps it would be best to bind a broad tape, with a cork under it

and upon the vessels, round the leg before the operation, thereby pressing on the nerve and cutting off the supply of blood. This would probably deprive the leg of all sensation. The most severe part of this method of periosteotomy would be the after-consequences. The incised tumor would inflame; the vacant channel would have to unite. The one would occasion agony, the other be probably attended with violent itching. The limb, therefore, should be bandaged, even though a wound upon the horse's body does not do so well when covered up. The bandage, however, will prevent the animal from injuring the sore leg with the opposite shoe, which a horse may be provoked to attempt by that irritation which attends the healing process.

OPERATIONS—NEUROTOMY.

Neurotomy is the division of the nerve which supplies the hoof of the fore leg with sensation. The foot of the horse being moved through tendons by muscles from above, and having in itself no muscular power, obviously has no occasion for a motor nerve. Consequently the nerve running to the foot is wholly sentient. It is the means of communication through which pain or pleasure is transmitted from the hoof to the brain.

To take away a portion of this nerve is evidently to separate the medium of such communication. Feeling can no more travel along a divided nerve than electricity can along a broken wire. The knowledge of this fact has led to a portion of the nerve being excised; and the doing of this has been named neurotomy.

A nerve is a very compound structure. It is composed of numerous fine filaments or small threads bound together by a cellular sheath called neurilema. Healthy nerve feels firm, and has a brilliant white appearance; unhealthy nerve is of a yellowish tint, and is of a less solid texture.

The operation of neurotomy is certain relief, but that relief is of uncertain duration. The divided nerve, after a time, reunites. The junction thus formed carries on all the functions of the perfect structure; but a bulb is left behind at the place of union. This bulb is to be easily felt by pressing upon the seat of neurotomy externally with the points of the fingers; and the bulb being felt leads to a knowledge that the horse has been subjected to the operation. Neurotomy, therefore, can never be concealed, if pains are bestowed upon its detection. The operation, however, is not successful in every case.

In some animals, the wound has just closed when junction seems to be formed between the divided ends of the nerve. The lameness then returns as acutely as ever.

In others, the horse will proceed to work, and continue sound ever after—the restored power to use the foot having, in the last case, seemingly destroyed the affection.

Some animals are subjected to operation so late that disease has had time to weaken the pedal structures. The consequence is that no sooner does the absence of feeling tempt the horse to throw his entire weight upon the foot than the navicular bone fractures or the perforans tendon ruptures.

Certain horses, from a tingling sensation in the neurotomized foot—similar to that felt by men in the imaginary fingers of an arm which has been amputated—will stamp violently till they injure it and provoke suppuration; while other feet are so irritable that the head is bent downward and large pieces from the hoof literally bitten off. To account for this last circumstance the reader must remember that, though the foot seems to itch, it in reality has no sensation to preserve it from the teeth of the provoked animal.

Cases occasionally happen of horses having picked up nails, or having incurred wounds in the foot, which, being deprived of feeling, the animal wanted the power to recognize. No lameness was exhibited, and the injury was necessarily unattended to. The foot has been left alone till the hurt has induced mortification.

Weak feet have not been able to endure the consequences of operation. They have sustained no external injury, but the heaviness of tread attendant on a loss of sensation has so battered the senseless member that suppuration has been induced. The hoof has therefore been cast off and the horse been destroyed, although it was discovered in the stable standing with the utmost composure upon the bleeding and exposed flesh.

These are a few of the disagreeables attending a most humane and successful operation. The first requisite for the performance of neurotomy is a sound knowledge of anatomy. A familiar acquaintance with the course of the nerve is essential. It descends in two main branches from the knee, one on either side of the leg. It travels in company with and behind the artery and vein on the inner side of the fore limb. On the outer side it is accompanied by no vessel. About the center of the leg, however, the two nerves are united by a branch which travels over the perforans tendon, connecting the sentient fibers of either side. It is therefore essential, in the performance of neurotomy, to make the primary incision rather low down, especially if it is meant that the high operation should be accomplished, or that all sensation should be destroyed on one side by a single division.

At the pastern the nerve divides; the posterior branch runs direct to

the frog. The anterior branch travels in front of the artery for some distance, when it takes a more forward course, dividing into several separate branches.

The generality of operators remove about an inch of the main trunk before the nerve divides, or above the pastern; and the result certainly confirms the soundness of such a practice.

The nerve of the frog is, however, frequently excised. The objection to this is the junction of a filament of the anterior branch with the nerve below the excision. That union should deprive the operation of all effect; but, notwithstanding, the division is sometimes beneficial. The operation is, however, never certain; and to that circumstance the proprietor must make up his mind when he sanctions its performance.

THE COURSE OF THE NERVE EXPOSED.

a. Denotes the nerve of the frog.

Always examine minutely any horse submitted to you for neurotomy. Do this to discover if the operation has been previously performed—the object being that you may thereby be prepared for some trouble in mastering the retentive consciousness of the animal; likewise, that by such inquiries you may decide upon the benefit likely to result from the operation; also, that you may be warned of a bloody and tedious job. The leg which has previously been subjected to neurotomy becomes doubly vascular. We know of no reason to account for this phenomenon, excepting it may denote the cost at which nature repairs her higher order of structures.

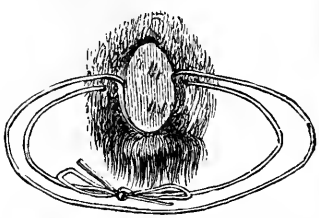
A HORIZONTAL INCISION, WITH THE HAIR CLIPPED ABOVE THE OPENING.

A PERPENDICULAR INCISION, WITH THE HAIR CUT OFF ABOVE AND ON THE SIDES OF THE WOUND.

Before you consent to operate upon any animal, examine the feet. If the hoof is weak or even weakly, refuse at once. If the hoof be strong and thick, the wall upright, and the frog small, you may consent, with the best hopes of success. Have such a horse put into the stable, and

the diseased foot or feet kept wet for a week prior to the operation. This frequently has the effect of constringing the arteries, greatly depriving the part of blood. That result renders the use of the knife more cleanly and more easy. Two days prior to the important one have the hair cut short over the place or places where you design to make your incisions. By so doing, all chance of hair getting into and irritating the wound will be effectually destroyed. This may happen, and, should the hair be left on, much delay will be occasioned, while the animal's sufferings must be augmented if the hair be clipped after the horse is down for operation.

Never operate upon a horse with the hair uncut—leave that to parties who league with the lowest class of horse-cheats. Cut off hair two days beforehand. Make an incision through the skin about three-quarters to one inch long. Have a needle and thread ready—a strong surgeon's needle and a stout twine. Pierce the divided skin from the inside to the outside, leaving a moderate piece of twine hanging out of the wound. Carry the twine under the leg, and pierce the integument on the other margin of the wound—also from the interior to the exterior. Then bring the piece of twine left hanging out of the first puncture and the needle together, at the back of the leg. Slightly tighten the twine; fasten these two ends in a bow, and the effect will be to keep the sides of the incision asunder.



THE MODE OF FASTENING BACK THE SIDE OF A PERPENDICULAR WOUND.

If you design to perform the high operation, choose a spot a little above the pastern, and incise the skin at one cut, if possible. The high operation is most approved of for general purposes, and, as before remarked, destroys sensation in the entire hoof. Some proprietors think it well to leave a little feeling in the forward portion of the foot, which is free from disease. This is done to escape those results that have already been enumerated as the effects of total insensibility. The high operation is, therefore, performed only on one side, and the posterior or low division on the other. There are two spots at which the low operation may be accomplished. The author has given the reader a representation of the anatomy of the leg. He presents a view on page 455, of the places where the incisions can be made.

Either of the lower operations, regarded by itself, is very uncertain in its effect; and, if taken both together, they present no advantage over the superior opening.

These remarks may be better comprehended, by comparing this

engraving with the course of the nerve shown in the previous illustration.

When the skin is divided—supposing the horse is neurotomized for the first time—nothing is visible but white-looking cellular tissue. This must be carefully dissected away with a pair of forceps and a scalpel. Dissect on until the nerve and artery are exposed plainly to view. Then take a crooked needle and thread. Pierce the nerve—this you may do fearlessly. The author has not known it to produce pain.

The superior opening represents the place where one side of the foot may be deprived of sensation by a single division.

The two middle incisions denote the part where either the fore or after portion of the foot may, perhaps, be rendered void of sensation.

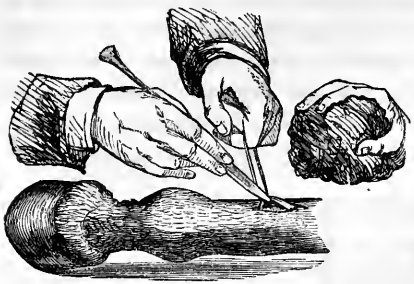
The two inferior cuts suggest the situations where, probably, the parts of the foot toward which the incisions point may be made insensible.

The fibers composing the nerve are so fine that the needle's point is blunt when compared with them. It, therefore, glides through them without pricking any of the filaments.

If the horse has been operated upon before, you must expect a tedious and sanguinary business. It is then of all importance to obtain a very attentive and equally nimble man to take the sponge. Blood will follow every movement of the knife. However, with each cut you must retract the hand, and the man who has care of the sponge must quickly, surely, and forcibly cleanse the wound. When the sponge is withdrawn, for an instant, and for an instant only, is there a clear view of the part. The operator must be ready to make the most of that glimpse; for, the next moment, blood flows over the lips of the orifice and all is concealed from view. Thus we proceed, rather snipping than cutting, taking away particles instead of flakes of cellular tissue, till the nerve is exposed. Then it is fixed with the needle as before directed.

The nerve being caught, withdraw the needle, leaving the thread

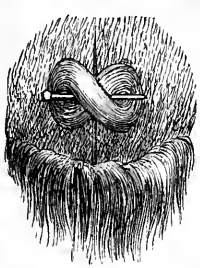
behind. Tie both ends of the thread together, and insert the first finger of your left hand into the loop thus formed. By gentle traction raise the nerve a little, and with the knife release its inferior attachments. Then let the man who held the sponge make pressure with all his force upon the artery and nerve *above* the incision. After this has been done about a minute, and by the stoppage of the circulation you may conclude the sensation to be in some degree numbed, insert the blade of the knife under that portion of the nerve which is nearest the body, and cut boldly upward.



THE LOOP RAISING THE NERVE WHILE THE KNIFE LOOSENS ITS INFERIOR ATTACHMENTS.

A spasm mostly follows the division; but it is of short duration. Afterward dissect about one inch of the nerve from its attachments, and remove this inch from the main trunk. No sign of feeling will follow the excision when made lower down. All communication with the brain has been cut off by the previous division, and the sensorium no longer takes notice of any violence offered to that part of the body which has been isolated.

Next, having sponged the part, close the wound by means of a pin forced through the lips of the orifice. Then twist a little tow round it in the form of a figure of 8. That being finished, so much of the point as protrudes is to be removed with a pair of wire nippers; a bandage is then put on; and, if both sides of the limb are to be neurotomized, the horse is turned over. All being accomplished, return the horse to the stable, but watch the pin which fastens the wound. If the incision continues dry, the pin may not be removed till six days have expired; but if the slightest appearance of pus be suspected, immediately withdraw the pin, and remove the tow, treating the part with solution of chloride of zinc, as though it were a common wound.



THE BEST WAY TO CLOSE THE WOUND CONSEQUENT UPON NEUROTOMY.

There are various knives invented for the performance of neurotomy. That the writer most approves of was the invention of Mr. Woodger, the admirably practical veterinary surgeon of Bishops Mews, Paddington. The author has used this instrument himself, and seen it guided

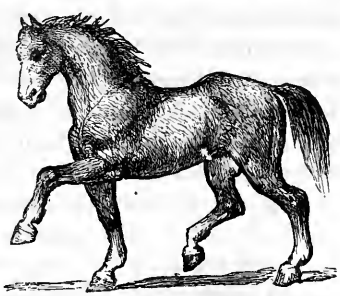
by other hands. In every case it has expedited the operation and thereby shortened the period of the animal's suffering.

The after-treatment of neurotomy consists in letting well alone, if all goes on rightly. Should pus make its appearance, bathe the wounds, thrice daily, with the solution of chloride of zinc, one grain to the ounce of water. Remove the bandages from the legs after the horse has

MR. WOODGER'S NEUROTOMY KNIFE.

To use this instrument.—After the nerve is raised, insert the crooked point, with the edge toward the body of the horse; then drive the knife forward. By this simple means the cutting portion of the blade is brought violently in contact with the nerve, which is excised at the proper point, and about an inch is left hanging out below the incision.

entered the stable. The incisions heal more readily when exposed to the stimulating effects of the air. Place a cradle round the horse's neck, and feed liberally. Avoid all purgative medicine; you now want an injury repaired, and do not desire to reduce the vital energy.



THE AWKWARD TREAD OF A HORSE WHEN NEWLY NEUROTOMIZED.

When the wounds have healed, the horse may be gradually taken once more to work, but it should not be fully used. Excessive and too early labor is the cause of the many serious objections taken to a merciful operation. The horse for some period does not feel his foot. He does not flex the pastern as the hoof nears the ground. The foot is placed flat upon the earth, and with a kind of sensible jar, as though the animal had made "a false step." This peculiarity unfits the quadruped to trot upon stones, or hard roads, until it has learned "to handle its feet," or to accommodate the tread to the new condition of the hoof.

OPERATIONS—DIVISION OF THE TENDONS.

Many horses when standing knuckle over to such an extent as threatens to throw them upon their knees. Others can only put the toe of the hind leg to the ground. The natural use of the limb is equally injured in each case: the fore legs of the horse support the body and the burden; the hind legs propel the carcass and the load. Both are deformed by

contraction of the perforans tendon; and both deformities are generally produced by excessive labor, inducing strain, though a few cases have come to the author's knowledge of animals being born thus afflicted. When we contemplate the huge frame of the horse, it seems more than fitted for all man's ordinary purposes. But country carriers have vans proportioned only to the extent of their custom; their carts are enlarged as their trade increases; but very seldom is the power which draws the load augmented in the same proportion. The horse, so agile and so beautiful, as long as it can move the cart is esteemed to be not overweighted. It labors up hill, and then the carrier congratulates himself that the worst of the work is over; it may be for him, but it is not for his horse. All the stress in going down hill lies upon the back sinews; the animal has to put forth all its strength to check the downward impetus of the load. It is the same with other horses in the shafts of other vehicles. Three or four animals—according to the usual English fashion—may be attached to a load; but the weight which three strengths can draw upon level ground, when descending an inequality, then, never bears equally upon the leaders.

Clap of the back sinews is a common accident with all horses. The equine delight is the pleasure of the master. So entirely is the horse the slave of man, that it, by instinct, puts forth its utmost strength to attain anything in which its owner takes enjoyment. It does so regardless of its own probable sufferings. In racing, in hunting, in all kinds of pastime the horse will strain every nerve and even burst its strong vessels laboring to gratify an ungrateful proprietor. Who does not remember the old coaching days? The animals then appeared happy in their vocation. A well-appointed coach, trotting by the White Horse Cellar, was a sight to contemplate. However, follow the vehicle to the termination of the first stage. See the poor panting carcasses unharnessed—the perspiration lathering their sides, their veins swelling, their tails quivering, their nostrils jerking, and their limbs stiffened. Who then could regret that railroads were invented to indulge man's desire for speed? See, as the coach leaves the metropolis behind it, the cattle deteriorate. At last, behold life with swollen legs, stiff joints, and diseased feet made to propel the loaded vehicle. Who, properly regarding such a spectacle, and having a heart to feel, does not rejoice that a method of traveling has at length been invented which renders the employment of the lash to overcome the agonies of breathing flesh no longer imperative?

These fast abuses induced contraction of the perforans tendon in the front legs. There is, however, this difference between contraction in the anterior and posterior extremities—one hind leg only may be

affected; but the author remembers no instance of one fore leg being alone involved.

When a tendon is sprained, it is usual to apply stimulating or fiery mixtures to that part, winding up the treatment with blisters and the heated iron. Notwithstanding such measures are very seldom successful, man seems incapable of learning anything where another has to bear the torture, and he will often endure a great deal of agony himself before an obvious idea can be awakened.

Such slowness is, however, very lamentable in the case of the horse. **Division of the tendons** was borrowed from the human surgeon by the veterinary practitioner. The operation, however, till very lately, remained as it was originally adopted. Human surgery had advanced; but veterinary practice stood motionless. At length, Mr. Varnell came from America, and instructed veterinarians in an improved mode of operating, which at this date should be universally practiced.

THE KNIFE EMPLOYED BY MR. VARNELL, ASSISTANT PROFESSOR AT THE ROYAL VETERINARY COLLEGE.

THE POSITION OF THE LEG WHEN THE KNIFE IS INSERTED.

A stout knife with a probed point, a curved blade, and a smooth, rounded back, is first obtained. Before the blade is inserted, the skin is divided, at the point selected for the operation, by the slight puncture of a lancet.

The leg is then flexed; the tendons are, by the position of the limb, rendered flaccid. The knife is next inserted sideways, behind the nerve and artery, under the tendons. This last act is not, however, in practice, very easy or very safe.

The edge of the knife is now toward the shoulder or haunch, and the vessels lie upon that side of the blade which is nearest to the bone. The operator now, by a simple motion of the hand, turns the cutting edge of the knife toward the posterior part of the limb. A man at the same moment takes hold of the leg and forces it straight; the perforans tendon is thus dragged against the knife, while the suspensory ligament and vessels are safe at the back of the blade. If the tendon be not divided without any effort on the part of the operator, he makes a sawing motion as he withdraws the knife. A slight sensation or a feeble sound often testifies the separation of the structure.

THE TENDON DIVIDED.

Often, if the contraction be not chronic, the strength of the extensor pedis muscle, when released from its opponent's force, is sufficient to straighten the fetlock. When the disease, however, has existed for any time, it requires some violence to break down the false attachments which have been formed. For this purpose the knee of a strong man is placed in front of the fetlock-joint, and the horse's foot is, by pulling hard, drawn forward.

The wound is then closed with a pin and twisted thread, as in neurotomy, and the animal, till junction is perfected, should be kept in the stable, as the shoe to be worn afterward is not favorable to progression. One week after the operation, a shoe, with a projecting piece at the toe about one inch and a half long, is to be put on the foot of the diseased limb. Five weeks after this, the shoe is to be replaced by one having the projecting point twice as long; and this last is to be worn till union

THE SHOE TO BE WORN ONE WEEK AFTER DIVISION OF THE TENDON HAS BEEN ACCOMPLISHED.

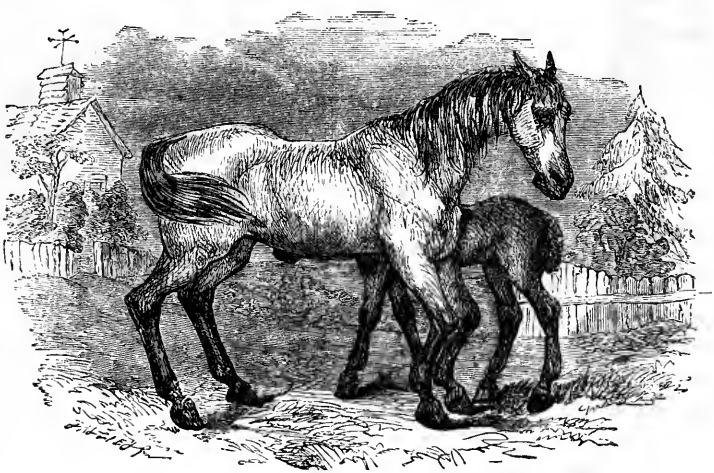
THE SHOE TO BE PUT ON SIX WEEKS AFTER DIVISION OF THE TENDON, AND TO BE WORN UNTIL UNION IS PERFECTED.

is supposed to be perfected — till the expiration of three months at least.

The horse, after having the tendon divided, is said to be as strong as

ever. The author would, however, object to such an animal being put into the shafts with even a light load behind it, or to its being again used for saddle purposes. The animal, though forbidden these uses, has still a large field of service open to it.

This operation is alike effectual and humane. That the last assertion may not appear based upon a single opinion, the author presents the reader with an engraving taken from a park near Lewes. That animal seemed to have all four limbs contracted, or the hind limbs were flexed and much advanced, to take the weight off the fore members. A foal ran by the side of the creature thus crippled; though it would be supposed no sane person would select such a dam to breed from.



Now had this mare been operated upon, slight pain would have been inflicted. Tendon, unless in a state of inflammation, has no sensation. Relief would have been afforded for the remainder of the life, and though, from her make and shape, the animal might never have held a high station among her breed, still, with straight legs she must have been worth as much for work as with bent limbs she could be valuable for stock purposes.

LAYING OPEN THE SINUSES OF A QUITTOR.

Give no opening medicine to any horse previous to this operation. Every member of the equine race is more likely to be too low from excess of work, than in any degree inflammatory from over-indulgence. Therefore, discard the general practice of preparing the horse with a dose of compound aloes. If the bowels are costive, get them open. But before employing the drastic drug, try what bran mashes and green-meat can effect. The entire strength will be needed to repair the injuries effected with the knife.

Give tonics and high feeding where the symptoms declare the body to be enervated. It is at all times better to operate upon a system having a superabundance of vital energy than upon one in which the powers are at all tardy. Collapse is the greatest enemy the surgeon has to dread. It is true, animals do not, like men, often "shut up" or die while under the operator; but frequently the most skillful surgery is defeated by the horse, after it has been released from the hobbles, never thriving. There may be no disease to be detected; but the body seems to want the strength requisite for recovery. To make this apparent to the reader—two gentlemen shall each perform neurotomy. One shall bungle, yet his patient shall do well. The wounds shall heal by the first intention, and the horse in a fortnight be again delighting its owner. The other shall display the perfection of scientific attainment; yet the horse shall never thrive. The wounds shall ulcerate, and the animal either gnaw the foot or cast the hoof. How can such differences be accounted for but by believing the horse is subject to a peculiar species of chronic collapse?

Rasp the quarter of the horse's foot which has **quittor**, until the soft, light-colored horn of the laminæ is exposed. Then let the hair be cut off around the opening on the coronet, and the foot be carefully cleansed. Afterward throw the horse. Release the quittored leg from the hobbles, and with a steel director probe each sinus. So soon as the instrument is well in, take a sharp-pointed knife and run it carefully down the groove of the director. Then ascertain, with a grooved probe, whether the sinus decreased in diameter, or whether the whole extent of the pipe be laid open. If the smallest portion remains, to which the knife has not reached, use the groove of the probe as a director, and slit it up. Do this to as many sinuses as may exist.

Next place in each sinus a small piece of tow. These pieces of tow should be already divided into short and thin skeins. They should be

saturated with chloride of zinc dissolved in spirits of wine, one scruple to the ounce. Put one of these into each sinus, and let the horse up. In three days such of the pieces of tow as have not been removed by the sloughing process may be taken from the wounds, and the foot simply dressed with chloride of zinc and water, one grain to the ounce, squeezed from a sponge, as in the case of open joint.

THE QUARTER RASPED BENEATH THE OPENING OF A QUITTOR.

THE SINUSES OF A QUITTOR BEING OPERATED UPON.

This operation, when described, reads abhorrent; but it is really most humane. It is a common thing for a horse to be three, or even six months under treatment, on account of an ordinary quittor. During the entire space, the foot—the tenderest part of the horse's body—is burned with violent caustics, and has had heated wires thrust down its sinuses. By the operation proposed, the affair is settled in a few minutes. The horse seldom evinces much sensibility while the knife is being employed; in three days the animal is so far recovered as to allow the diseased member almost to be left to nature. The horse should, however, on no account do any work before the hoof is in some measure restored. Until the outer covering of dark horn has grown down, a bar shoe, well eased off the diseased quarter, should be worn. When the hoof is reproduced, instead of false quarter or other deformities, the usual results of quittor, it is all but impossible to decide which has been the affected foot, and which was operated upon.

The author has now stated at length that treatment which the horse for its own sake deserves, and which, for the honor of the being whom it serves, the animal should receive. He has, designedly, rather appealed

to the reason of his readers than sought to enlist their feelings. The subject was, indeed, a wide one. Man has hitherto been too content to consider animals as something given absolutely to him to be treated according to his sovereign will or merest pleasure. He has not reflected that, when he was created lord of this earth, he was invested with a title which had its responsibilities as well as its privileges.

ALPHABETICAL SUMMARY.

A BRIEF SUMMARY

OF THE FOREGOING MATTER,

ARRANGED IN ALPHABETICAL ORDER.

THIS abbreviation is made for the purpose of hasty consultation, when the symptoms exhibited by the horse are so urgent as will not allow the owner to refer to the body of the book. That, however, he is earnestly recommended to do after the first anxiety has subsided; because what follows is to be regarded only as notes of cases, and by no means to be viewed as a substitute for the more detailed descriptions of diseases and their treatment.

ABSCESS OF THE BRAIN.

Cause.—Some injury to the head.

Symptoms.—Dullness; refusal to feed; a slight oozing from a trivial injury upon the skull; prostration, and the animal, while on the ground, continues knocking the head violently against the earth until death ensues.

Treatment.—None of any service.

ABDOMINAL INJURIES.

Ruptured Diaphragm generally produces a soft cough; sitting on the haunches or leaning on the chest may or may not be present; the countenance is haggard.

Ruptured Spleen answers to the tests described under "Hemorrhage of the Liver."

Ruptured Stomach is characterized by excessive colic, followed by tympanitis.

Introsusception possibly may be relieved by the inhalation of a full dose of chloroform; but the result is always uncertain.

Invagination is attended with the greatest possible agony.

Strangulation is not to be distinguished, during life, from invagination.

Calculus causes death by impactment; but however different the causes of abdominal injury may be, they each produce the greatest agony, which conceals the other symptoms, and makes all such injuries apparently the same while the life lasts.

ACITES, OR DROPSY OF THE ABDOMEN.

Cause.—Chronic peritonitis.

Symptoms.—Pulse hard; head pendulous; food often spoiled; membranes pallid; mouth dry. Pressure to abdomen elicits a groan; turning in the stall calls forth a grunt. Want of spirit; constant lying down; restlessness; thirst; loss of appetite; weakness; thinness; enlarged abdomen; constipation and hide-bound. Small bags depend from the chest and belly; the sheath and one leg sometimes enlarge; the mane breaks off; the tail drops out. Purgation and death.

Treatment.—When the symptoms first appear give, night and morning, strychnia, half a grain, worked up to one grain; iodide of iron, half a drachm, worked up to one drachm and a half; extract of belladonna, one scruple; extract of gentian and powdered quassia, of each a sufficiency; apply small blisters, in rapid succession, upon the abdomen: but if the effusion is confirmed, a cure is hopeless.

ACUTE DYSENTERY.

Cause.—Some acrid substance taken into the stomach.

Symptoms.—Abdominal pain; violent purgation; the feces become discolored, and water fetid; intermittent pulse; haggard countenance; the position characterizes the seat of anguish. Perspiration, tympanitis, and death.

Treatment.—Give sulphuric ether, one ounce; laudanum, three ounces; liquor potassæ, half an ounce; powdered chalk, one ounce; tincture of catechu, one ounce; cold linseed tea, one pint. Repeat every fifteen minutes. Cleanse the quarters; plait the tail; inject cold linseed tea. The whole of the irritating substance must be expelled before improvement can take place.

ACUTE GASTRITIS.

Cause.—Poison; generally given to improve the coat.

Symptoms.—Excessive pain, resembling fury.

Treatment.—Give, as often and as quickly as possible, the following drink: Sulphuric ether and laudanum, of each three ounces; carbonate of magnesia, soda, or potash, four ounces; gruel, (*quite cold,*) one quart. Should the pulse be sinking, add to the drink carbonate of ammonia, one drachm. If corrosive sublimate is known to be the poison, one dozen raw eggs should be blended with each drench. If delirium be present, give the medicine as directed for tetanus, with the stomach pump.

ACUTE LAMINITIS.

Cause.—Often man's brutality. Horses driven far and upon hard roads are exposed to the disorder. Any stress long applied to the foot, as standing in the hold of a ship, may generate the affection.

Symptoms.—The pace seems odd toward the end of the journey; but the horse is placed in the stable with plenty of food for the night. Next morning the animal is found all of a heap. Flesh quivering; eyes glaring; nostrils distended, and breath jerking; flanks tucked up; back roached; head erect; mouth closed; hind legs advanced under the belly; fore legs pushed forward; fore feet resting upon the heels, and the limbs moved as though the horse were dancing upon hot irons.

Treatment.—Put on the slings in silence. To the end of the cords append weights. Soak the feet in warm water, in which a portion of alkali is dissolved. Cut out the nails from the softened horn. Before the shoes are removed give half a drachm of belladonna and fifteen grains of digitalis, and repeat the dose every half hour until the symptoms abate. When the slings are up, open the jugular vein; abstract one quart of blood, and inject one pint of luke-warm water. Clothe the body; place thin gruel and green-meat within reach, and leave two men to watch for the first three nights.

Next morning give sulphuric ether and laudanum, of each two ounces, in a pint of water. Should the pastern arteries throb, open the veins and place the feet in warm water. While the affection lasts, pursue these measures; and it is a bad symptom, though not a certain one, if no change for the better takes place in five days.

ALBUMINOUS URINE.

Cause.—Unknown.

Symptoms.—These consist of the positions assumed by the horse. The legs are either stretched out or the hind feet are brought under the body. Straddling gait, and much difficulty in turning within the stall. Some urine being caught, it is thick, and answers to certain chemical tests.

Treatment.—Bleed moderately; give a laxative, and apply mustard to the loins. As after-measures, perfect rest, attention to diet, and repeated doses of opium.

APHTHA.

Cause.—Unknown.

Symptoms.—Small swelling on the lips; larger swellings upon the tongue. As the disease progresses, a clear liquid appears in each swelling. The bladders burst, crusts form, and the disease disappears.

Treatment.—Soft food, and the following wash for the mouth: Take borax, five ounces; honey or treacle, two pints; water, one gallon. Mix.

BLOOD SPAVIN.

A disease never encountered at the present time.

BOG SPAVIN.

Cause.—Brutality of some kind.

Symptom.—A puffy swelling at the front of and at the upper part of the hock.

Treatment.—Pressure, maintained by means of an India-rubber bandage.

BOTS.

Cause.—Turning out to grass.

Treatment.—No remedy. Wait till the following year, and the parasites will be ejected naturally.

BREAKING DOWN.

Cause.—Violent exertion; generally when racing.

Symptoms.—The horse, when going, suddenly loses power to put one

leg to the ground. The foot is turned upward; pain excessive; breathing quickened; pulse accelerated; appetite lost. In time these symptoms abate, but the leg is disabled for life.

Treatment.—Bleed and purge, or not, as the symptoms are severe. Place a linen bandage round the injury, and see that this is kept constantly cold and wet; put on a high-heeled shoe, and leave the issue to nature. The animal is afterward serviceable only to breed from.

BROKEN KNEES.

Causes.—Terrifying a horse, or rendering alive only to fear. Pulling in the chin to the breast, or driving with a tight bearing-rein.

Symptoms.—The horse falls; the knee may only be slightly broken, but deeply contused. A slough must then take place, and open joint may result. Or the animal may fall, and, when down, be driven forward by the impetus of its motion. The knee is cut by the fall, and the skin of the knee may be forced back by the onward impulse. This skin will become dirty; but the removed integument will fly back on the animal's rising, thus forming a kind of bag containing and concealing foreign matter.

Treatment.—Procure a pail of milk-warm water and a large sponge. Dip the sponge in the pail, and squeeze out the water above the knee. Continue to do this, but do not dab or sop the wound itself. The water flowing over the knee will wash away every impurity. Then with a probe gently explore the bag. If small, make a puncture through the bottom of the bag; if large, insert a seton, and move it night and morning until good pus is secreted: then withdraw the seton. "Rack up" the horse's head, and get some cold water, to every quart of which add two ounces of tincture of arnica. Pour a little of this into a saucer, and then dip a sponge into the liquid. Squeeze the sponge dry above the joint. Do this every half hour for three and a half days, both by day and night. If at the end of that time all is going on well, the head may be released; but should the knee enlarge and become sensitive, while the animal refuses to put the foot to the ground, withdraw the seton; give no hay, but all the oats and beans that can be eaten, with two pots of stout each day. Place the quadruped in slings; apply the arnica lotion until a slough takes place; then resort to the chloride of zinc lotion, one scruple to the pint, and continue to use this as has been directed.

BROKEN WIND.

Causes.—Old age, prolonged work, and bad food.

Symptoms.—Short, dry, hacking cough, caused by irritability of the larynx; ravenous appetite; insatiable thirst; abundant flatus. Dung half digested; belly pendulous; coat ragged; aspect dejected. Respiration is performed by a triple effort; inspiration is spasmodic and single; expiration is labored and double. The ribs first essay to expel the air from the lungs; these failing, the diaphragm and abdominal muscles take up the action. Broken wind can be set or concealed for a time by forcing the animal to swallow quantities of grease, tar, or shot. A drink of water, however, will always reproduce the symptoms.

Treatment.—No cure. Relief alone is possible. Never give water before work. Four half pails of water to be allowed in twenty-four hours. In each draught mingle half an ounce of phosphoric acid or half a drachm of sulphuric acid. Remove the bed in the day; muzzle at night; put a lump of rock-salt and of chalk in the manger. Never push hard or take upon a very long journey.

BRONCHITIS.

Causes.—Riding far and fast; then leaving exposed, especially to the night air; neglect and constitutional liability.

Symptoms.—Appetite often not affected; sometimes it is increased. A short cough, in the first instance; breathing only excited; legs warm; mouth moist; and nasal membrane merely deeper color during the early stage. When confirmed, the appetite is lost; the horse is averse to move; the cough is sore and suppressed; the breathing is audible; the membranes are scarlet; the mouth is hot and dry; the legs are cold; the body is of uneven temperatures.

Treatment.—Do not deplete. Place in a large, loose box; fill the place with steam; apply scalded hay to the throat; fix flannels wet with cold water to the back and side by means of a Mackintosh jacket. When the flannel becomes warm, change it immediately. Do this for two hours. After that space the flannel may remain on, but must not become dry. Prepare half a pound of melted Burgundy pitch, and stir into it two ounces of powdered camphor, with half a drachm of powdered capsicums. Apply the mixture to the throat. To restore tone to the pulse, give, every half hour, sulphuric ether and laudanum, of each one ounce; water, one pint. If no effect be produced by three of these drinks, substitute infusion of aconite, half an ounce; extract of belladonna, half a

drachm, rubbed down in water, a quarter of a pint. When the pulse has recovered, resume the former physic, only adding half a drachm of belladonna to each dose. Support with gruel. Introduce food gradually; "chill" the water; be careful of hay, and mind, when given, it is thoroughly damped.

BRONCHOCELE.

Symptom.—An enlargement on the side of the throat.

Treatment.—Give the following, night and morning: Iodide of potassium, half a drachm; liquor potassæ, one drachm; distilled water, half a pint. Also, rub into the swelling the accompanying ointment: Iodide of lead, one drachm; simple cerate, one ounce.

BRUISE OF THE SOLE.

Cause.—Treading on a stone or some projecting body.

Symptom.—Effusion of blood into the horny sole.

Treatment.—Cut away the stained horn, and shoe with leather.

CALCULI.

Causes.—Unknown.

Symptoms of Renal Calculus. — Urine purulent, thick, opaque, gritty, or bloody; back roached. Pressure on the loins occasions shrinking; the arm in the rectum and the hand carried upward provoke alarm.

Treatment. — Two drachms of hydrochloric acid in every pail of water; but the result is dubious.

Symptoms of Cystic Calculus.—Same states of urine as in renal calculus. The water, when flowing forth, is suddenly stopped; every emission is followed by straining; the back is hollowed; the point of the penis is sometimes exposed; and, when going down hill, the animal often pulls up short.

Treatment of Cystic Calculus.—Examine per rectum. An operation for the horse, or Mr. Simmonds's instrument for the mare, is imperative. When the stone is small, hydrochloric acid may be tried.

Symptoms of Urethral Calculus.—Suppression of urine; great suffering. If the urethral calculus is impacted in the exposed portion of the urethra, the passage is distended behind the stoppage.

Treatment of Urethral Calculus.—Cut down upon and remove the substance.

CANKER.

Cause.—Old horses, when "turned out" for life as pensioners; aged and neglected animals will also exhibit the disease.

Symptoms.—Not much lameness. The disease commences at the cleft of the frog; a liquid issues from the part, more abundant and more abominable than in thrush; it often exudes from the commissures joining the sole to the frog. The horn firstly bulges out; then it flakes off, exposing a spongy and soft substance, which is fungoid horn. The fungoid horn is most abundant about the margin of the sole, and upon its surface it flakes off. This horn has no sensation. The disease is difficult to eradicate when one fore foot is involved. When all four feet are implicated, a cure is all but hopeless, and the treatment is certain to be slow and vexatious.

Treatment.—See that the stable is large, clean, and comfortable; note that the food is of the best; allow liberal support; pare off the superficial fungoid horn, and so much of the deep seated as can be detached. Apply to the diseased parts some of the following: Chloride of zinc, half an ounce; flour, four ounces. Put on the foot without water. To the sound hoof apply chloride of zinc, four grains; flour, one ounce. Cover the sound parts before the cankered horn is dressed; tack on the shoe; pad well and firmly. When places appear to be in confirmed health, the following may be used: Chloride of zinc, two grains; flour, one ounce. At first, dress every second day; after a time, every third day, and give exercise as soon as possible.

CAPPED ELBOW.

Cause.—Injury to the point of the elbow.

Symptom.—It is often of magnitude, and is liable to ulcerate and become sinuous.

Treatment.—The same as capped hock.

CAPPED HOCK.

Cause.—Any injury to the point of the calcis.

Symptom.—A round swelling on the point of the hock, which, should the cause be repeated, often becomes of great size.

Treatment.—If small, set several men to hand-rub the tumor constantly for a few days. Should the capped hock be of magnitude, dissect out the enlargement, without puncturing it. Remove none of the

pendulous skin. Treat the wound with the lotion of chloride of zinc—one grain to the ounce of water—and it will heal after some weeks.

CAPPED KNEE.

Cause.—The same as the previous affection.

Symptom.—A soft tumor in front of the knee.

Treatment.—If let alone, it would burst and leave a permanent blemish. Draw the skin to one side, and with a lancet pierce the lower surface of the tumor. Treat the wound as an open joint.

CATARACT.

Cause.—Looking at white walls, or receiving external injuries. Specific ophthalmia generates a permanent cataract.

Symptoms.—When partial, shying; if total, white pupil and blindness.

Treatment.—Color the inside of the stable green, as cataract, when not total, is sometimes absorbed.

CHOKING.

Causes.—Something impacted in the gullet, either high up or low down.

Symptoms—High Choke.—Raised head; saliva; discharge from the nostrils; inflamed eyes; haggard countenance; audible breathing; the muscles of neck tetanic; the flanks heave; the fore feet paw and stamp; the hind legs crouch and dance; perspiration; agony excessive. *Low Choke.*—The animal ceases to feed; water returns by the nostrils; countenance expresses anguish; saliva and nasal discharge; labored by seldom, noisy breathing; roached back; tucked-up flanks, while the horse stands as though it were desirous of elevating the quarters.

Treatment.—Make haste when high choke is present. Perform tracheotomy to relieve the breathing; insert the balling-iron, or, with a hook extemporized out of any wire, endeavor to remove the substance from the throat. If the choking body is too firmly lodged to be thus removed, sulphuric ether must be inhaled to relax the spasm. The ether not succeeding, an egg is probably impacted. Destroy its integrity with a darning-needle carefully inserted through the skin; then break the shell by outward pressure. *Low choke is seldom fatal before the expiration of three days.* Give a quarter of a pint of oil every hour; in the intermediate half hours give sulphuric ether, two ounces; laudanum,

two ounces; water, half a pint; and use the probang after every dose of the last medicine. Should these be returned, cause chloroform to be inhaled; then insert the probang, and, by steady pressure, drive the substance forward.

Subsequent to the removal of impactment feed with caution.

CHRONIC DYSENTERY.

Cause.—Not well understood; generally attacks old horses belonging to penurious masters.

Symptoms.—Purging without excitement, always upon drinking cold water; violent straining; belly enlarges; flesh wastes; bones protrude; skin hide-bound; membranes pallid; weakness; perspiration; standing in one place for hours. At last the eyes assume a sleepy, pathetic expression; the head is slowly turned toward the flanks; remains fixed for some minutes; the horse only moves when the bowels are about to act; colic; death.

Treatment.—Give, thrice daily, crude opium, half an ounce; liquor potassæ, one ounce; chalk, one ounce; tincture of all-spice, one ounce; alum, half an ounce; ale, one quart. Should the horse belong to a generous master, give one of the following drinks thrice daily, upon the symptoms being confirmed: Sulphuric ether, one ounce; laudanum, three ounces; liquor potassæ, half an ounce; powdered chalk, one ounce; tincture of catechu, one ounce; cold linseed tea, one pint. Or, chloroform, half an ounce; extract of belladonna, half a drachm; carbonate of ammonia, one drachm; powdered camphor, half a drachm; tincture of oak-bark, one ounce; cold linseed tea, one pint. Feed lightly; dress frequently; give a good bed and a roomy lodging.

CHRONIC GASTRITIS.

Symptoms.—Irregularity of bowels and appetite; pallid membranes; mouth cold; a dry cough; tainted breath; sunken eye; catching respiration; pendulous belly; ragged coat, and emaciation. Sweating on the slightest exertion; eating wood-work or bricks and mortar.

Treatment.—Do not purge; administer bitters, sedatives, and alkalies. Give powdered nux vomica, one scruple; carbonate of potash, one drachm; extract of belladonna, half a drachm; extract of gentian and powdered quassia, of each a sufficiency. Or give strychnia, half a grain; bicarbonate of ammonia, one drachm; extract of belladonna, half a drachm; sulphate of zinc, half a drachm; extract of gentian and powdered quassia, of each a sufficiency. Give one ball night and morn-

ing; when these balls seem to have lost their power, give half an ounce each of liquor arsenicalis and tincture of ipecacuanha, with one ounce of muriated tincture of iron and laudanum, in a pint of water; damp the food; sprinkle magnesia on it. As the strength improves, give sulphuric ether, one ounce; water, one pint, daily. Ultimately change that for a quart of ale or stout daily.

CHRONIC HEPATITIS.

Cause.—Too good food and too little work.

Symptoms.—Cold mouth; pallid membranes; white of eyes ghastly, displaying a yellow tinge; looks toward the right side; the right side may be tender for a long time, with generally repeated attacks of this nature, although the horse may perish with the first fit.

Treatment.—Hold up the head, and if the horse staggers, this proves hemorrhage from the liver. Give sufficient of nutritious food, but only enough of it, plenty of labor, and the following physic: Iodide of potassium, two ounces; liquor potassæ, one quart; dose, night and morning, two tablespoonfuls in a pint of water.

CLAP OF THE BACK SINEWS.

Cause.—Extra exertion.

Symptoms.—The maimed limb is flexed; the toe rests upon the ground. In a short space a tumor appears; it is small, hot, soft, and tender, but soon grows hard. Great pain, but attended with few constitutional symptoms.

Treatment.—Administer physic, and bleed gently; then give a few doses of febrifuge medicine, but go no further than to reduce the pulse to fifty-five degrees. Put a linen bandage on the leg; keep this constantly wet until the primary symptoms abate. Cut grass for food while fever exists; continue the cold water till recovery is confirmed. The horse will not be fit to work for many months.

COLD.

If mild, a little green-meat, a few mashes, an extra rug, and a slight rest generally accomplish a cure.

Symptoms of severe cold are dullness; a rough coat; the body of different temperatures; the nasal membrane deep scarlet, or of a leaden color; the appetite is lost; simple ophthalmia; tears; the sinuses are clogged, and a discharge from the nose appears.

Treatment.—Give no active medicine. Apply the steaming nose-bag six times daily; allow cut grass and mashes for food, with gruel for drink. If weak, present three feeds of crushed and scalded oats and beans daily, with a pot of stout morning and evening. Good nursing, with pure air, warmth, and not even exercise, till the disease abates, are of more importance than "doctor's stuff" in a case of severe cold. Cold, however, often ushers in other and more dangerous diseases.

CONGESTION IN THE FIELD.

Cause.—Riding a horse after the hounds when out of condition.

Symptoms.—The horse, from exhaustion, reels and falls. The body is clammy cold; the breathing is labored; every vein is turgid.

Treatment.—Bleed, if possible; cover the body; lead gently to the nearest stable; keep hot rugs upon the animal; bandage the legs and hood the neck; warm the place, either by a fire or tubs full of hot water. Give, without noise, every half hour, one ounce of sulphuric ether, half an ounce of laudanum, half a pint of cold water. Should no chemist be at hand, beat up two ounces of turpentine with the yolk of an egg; mix it with half a pint of water, and repeat the dose at the times stated. Allow an ample bed, and place a pail of gruel within easy reach of the horse. Do not leave the animal for thirty hours, as in that time its fate will be decided.

CONGESTION IN THE STABLE.

Cause.—A debilitated, fat horse, unused to work, being driven fast with a heavy load behind it.

Symptoms.—Hanging head; food not glanced at; blowing; artery gorged and round; pulse feeble; cold and partial perspirations; feet cold; eye fixed; hearing lost; and the attitude motionless.

Treatment.—Give immediately two ounces each of sulphuric ether and of laudanum in a pint of cold water. Give the drink with every caution. In ten minutes repeat the medicine, if necessary. Wait twenty minutes, and give another drink, if requisite; more are seldom needed. Take away all solid food, and allow gruel for the remainder of the day.

CORNS.

Cause.—In a flat foot, the heels of the coffin-bone squeeze the sensitive sole by pressing it against the shoe. In a contracted foot, the sensitive sole is squeezed between the wings of the coffin-bone and the thick, horny sole. A bruise results; blood is effused; and the stain of this left

upon the horny sole—generally upon the inner side and anterior to the bars—constitutes a horse's corn, which is mostly found on the fore feet.

Symptom.—If the stain is dark, and is to be removed with the knife, this indicates a corn has been, but no longer exists. The smallest stain of bright scarlet testifies to the existence of a new and present corn. Corns are of four kinds—the old, the new, the sappy, and the suppurative. The old and new are produced by the blood, and are judged by the scarlet or dark-colored stain. The old is generally near the surface, the new is commonly deep seated. The sappy is when the bruise is only heavy enough to effuse serum. The new corn alone produces lameness. The suppurating corn may start up from either of the others receiving additional injury. It causes intense pain and produces acute lameness.

Treatment.—Cut out the stain. If a suppurating corn, place the foot in a poultice, after having opened the abscess. Then, the horn being softened, cut away all the sole which has been released by the pus from its attachment to the secreting surface. Tack on an old shoe, and dress with the solution of the chloride of zinc, one grain to the ounce. Afterward shoe with leather, and employ stopping to render the horn plastic.

COUGH.

Causes.—Foul stables; hot stables; coarse, dusty provender; rank bedding; irregular work; while the affection may attend many diseases.

Treatment.—Crush the oats; damp the hay; give gruel or linseed tea for drink. Clothe warmly, and give, thrice daily, half a pint of the following in a tumbler of water: Extract of belladonna, one drachm, rubbed down in a pint of cold water; tincture of squills, ten ounces; tincture of ipecacuanha, eight ounces. No change ensuing, next try—Barbadoes or common tar, half an ounce; calomel, five grains; linseed meal, a sufficiency: make into a ball, and give one night and morning. This being attended with no improvement, employ—Powdered aloes, one drachm; balsam of copaiba, three drachms; cantharides, three grains; common mass, a sufficiency. Mix, and give every morning.

A daily bundle of cut grass is good in the spring of the year. A lump of rock-salt has been beneficial. If the animal eats the litter, muzzle it. Roots are good. Moisten the hay; and, above all things, attend to the ventilation of the stable.

CRACKED HEELS.

Cause.—Cutting the hair from the heels, and turning into a straw-yard during winter.

Symptoms.—Thickened skin; cracks; and sometimes ulceration.

Treatment.—Wash; dry thoroughly; apply the following wash: Animal glycerin, half a pint; chloride of zinc, two drachms; strong solution of oak-bark, one pint. Mix. If ulceration has commenced, rest the horse. Give a few bran mashes or a little cut grass to open the bowels. Use the next wash: Animal glycerin, or phosphoric acid, two ounces; permanganate of potash, or creosote, half an ounce; water, three ounces: apply six times daily. Give a drink each day composed of liquor arsenicalis, half an ounce; tincture of muriate of iron, one ounce; water, one pint.

CRIB-BITING.

Cause.—Sameness of food and unhealthy stables, or indigestion.

Symptoms.—Placing the upper incisors against some support, and, with some effort, emitting a small portion of gas.

Treatment.—Place a lump of rock-salt in the manger; if that is not successful, add a lump of chalk. Then damp the food, and sprinkle magnesia upon it, and mingle a handful of ground oak-bark with each feed of corn. Purify the ventilation of the stable before these remedies are applied.

CURB.

Causes.—Galloping on uneven ground; wrenching the limb; prancing and leaping.

Symptom.—A bulging out at the posterior of the hock, accompanied by heat and pain, often by lameness.

Treatment.—Rest the animal. Put on an India-rubber bandage, (see page 307,) and under it a folded cloth. Keep the cloth wet and cool with cold water. When all inflammation has disappeared, blister the hock.

CYSTITIS, OR INFLAMMATION OF THE BLADDER.

Causes.—Kicks and blows under the flank. Abuse of medicine, and bad food, with the provocatives generally of nephritis.

Symptoms.—Those common to pain and inflammation. Urine, however, affords the principal indication. At first, it is at intervals jerked forth in small quantities. Ultimately it flows forth constantly drop by drop. A certain but a dangerous test is to insert the arm up the rectum, and to feel the small and compressed bladder. A safer test is to press the flank, which, should cystitis be present, calls forth resistance.

Treatment.—Give scruple doses of aconite, should the pulse be ex-

cited; the same of belladonna, should pain be excessive; and calomel with opium, to arrest the disease. Place under the belly, by means of a rug, a cloth soaked with strong liquor ammonia diluted with six times its bulk of water. Or apply a rug dipped into hot water or loaded with cold water; change when either becomes warm.

DIABETES INSIPIDUS, OR PROFUSE STALING.

Causes.—Diuretic drugs or bad food.

Symptoms.—Weakness; loss of flesh; loss of condition.

Treatment.—Do not take from the stable; keep a pail of linseed tea in the manger; give no grass or hay; groom well. Order a ball composed of iodide of iron, one drachm; honey and linseed meal, a sufficiency. Or a drink consisting of phosphoric acid, one ounce; water, one pint. Give the ball daily; the drink, at night and at morning.

ENTERITIS.

Causes.—Greatly conjectural. Prolonged colic may end in it. Constipation may induce it.

Symptoms.—Dullness; heaviness; picks the food; shivers repeatedly; rolling; plunging; kicking, but more gently than in spasmodic colic; quickened breathing; hot, dry mouth; wiry pulse. Pressure to the abdomen gives pain. Remove your coat; insert the arm up the anus; if the intestines are very hot, all is confirmed.

Treatment.—Extract one quart of blood from the jugular, and inject into the vein one pint of water at a blood heat. Give aconite in powder, half a drachm; sulphuric ether, three ounces; laudanum, three ounces; extract of belladonna, one drachm, (rubbed down in cold water, one pint and a half.) As the pulse changes, withdraw the aconite; as the pain subsides, discontinue the belladonna. The other ingredients may be diminished as the horse appears to be more comfortable. Should the pain linger after the administration of the eighth drink, apply an ammoniacal blister. Sprinkle on the tongue, if any symptoms declare the disease vanquished but not fled, every second hour, calomel, half a drachm; opium, one drachm. Feed very carefully upon recovery, avoiding all things purgative or harsh to the bowels.

EXCORIATED ANGLES OF THE MOUTH.

Cause.—Abuse of the reins.

Treatment.—Apply the following lotion to the part: Chloride of zinc, two scruples; essence of anise seed, two drachms; water, two pints.

FALSE QUARTER.

Cause.—Injury to the coronet, producing an absence of the secreting coronet of the crust from the hoof.

Symptoms.—No lameness, but weakness of the foot. The soft horn of the laminæ, being exposed, is apt to crack. Bleeding ensues. Sometimes granulations sprout when the pain and the lameness are most acute.

Treatment.—In cases of crack and granulations, treat as is advised for sandcrack. Put on a bar shoe, with a clip on each side of the false quarter. Pare down the edges of the crack, and ease off the point of bearing on the false quarter. A piece of gutta-percha, fastened over the false quarter, has done good.

FARCY.

Causes.—Excessive labor, poor food, and bad lodging operating upon old age.

Symptoms.—It is at first inflammation of the superficial absorbents. Lumps appear on various parts. If these lumps are opened, healthy matter is released; but the place soon becomes a foul ulcer, from which bunches of fungoid granulations sprout. From the lumps may be traced little cords leading to other swellings. The appetite fails, or else it is voracious. Matter may be squeezed through the skin. Thirst is torturing. At length glanders breaks forth, and the animal dies. There is a smaller kind of farcy called button-farcy; the smaller sort is the more virulent of the two.

Cure.—There is no known cure for the disease.

FISTULOUS PAROTID DUCT.

Causes.—Hay-seeds or other substances getting into the mouth of the duct during mastication. Stones being formed within the canal. The stable-fork in the hand of an intemperate groom.

Symptoms.—The duct greatly enlarges behind the obstacle, which, becoming swollen, prevents the secretion from entering the mouth. Great agony is occasioned by every mouthful masticated. The duct bursts, and a fistulous opening is established, through which the saliva jerks at each motion of the jaw. From the absence of a secretion important to digestion, the flesh wastes, and the animal soon assumes a miserable appearance.

Treatment.—Make an adhesive fluid with gum mastic and spirits of wine, or with India-rubber and sulphuric ether. When the horse is not feeding, pare the hardened edges from the wound; cover the orifice with a piece of strained India-rubber; over this put a layer of cotton; fasten one end to the horse's cheek by means of the adhesive fluid; that having dried, fasten the other end tightly down. Place other layers of cotton over this, allowing each layer to cross the other, and fastening all to the cheek. Fasten the head to the pillar-reins; allow the horse to remain till the cotton falls off, and give only gruel for food. Put tan under the feet; and should the first trial not succeed, repeat it.

FISTULOUS WITHERS.

Cause.—External injury, generally by the lady's saddle, which bruises one of the bursæ placed above the withers.

Symptoms.—When first done, a small, round swelling appears on the off side. If this is neglected, the place enlarges, and numerous holes burst out, which are the mouths of so many fistulous pipes.

Treatment.—In the early stage, go to the horse's side, impale the tumor and divide it. Touch the interior with lunar caustic; keep the wound moist with the chloride of zinc lotion, one grain to the ounce of water, and cover it with a cloth dipped in a solution of tar. If the sinuses are established, make one cut to embrace as many as possible. Clean out the corruption. Scrape or cut off any black or white bone which may be exposed. Cover with a cloth, and keep wet with the solution of chloride of zinc. Should there exist a long sinus leading from the withers to the elbow, insert a seton by means of the guarded seton needle. This seton should be withdrawn so soon as a stream of creamy pus is emitted.

FUNGOID TUMORS IN THE EYE.

Cause.—Unknown.

Symptoms.—Blindness; a yellow, metallic appearance to be seen in the eye.

Treatment—None of any service.

GLANDERS.

Cause.—Bad lodging, stimulating food, and excessive work operating upon young life.

Symptoms.—Staring coat; lungs or air-passages always affected;

flesh fades; glands swell; spirit low; appetite bad. A lymphatic gland adheres to the inside of the jaw; the membrane inside the nose ulcerates; a slight discharge from one nostril. This becomes thicker, and adheres to the margin of the nostril, exhibiting white threads and bits of mucus; then it changes to a full stream of foul pus; next the nasal membrane grows dull and dropsical; the margins of the nostrils enlarge; the horse breathes with difficulty; the discharge turns discolored and abhorrent; farcy breaks forth, and the animal dies of suffocation.

Treatment.—There is no known cure.

GREASE.

Causes.—Age; debility; excessive labor; neglect; filth. Cutting the hair off the heels; turning out to grass in the cold months.

Symptoms.—Scurfiness and itchiness of the legs. Rubbing the leg with the hoof of the opposite limb; hairs stand on end; moisture exudes, and hangs upon the hairs in drops. Smells abhorrently; lameness; cracks on the skin; swelling; ulceration; thin discharge; odor worse. Lameness increases; leg enlarges; granulations sprout in ragged bunches; their points harden and become like horn; pain excessive; horn of hoof grows long.

Treatment.—Cut off all remaining hair. If hot and scurfy, cleanse with mild soap and hot, soft water; saturate a cloth with the following lotion: Animal glycerin, half a pint; chloride of zinc, half an ounce; water, six quarts. Lay it upon the leg. When this cloth becomes warm, remove it, and apply another, also wet with the lotion; thus continue applying cool cloths to the limb till the heat abates; afterward moisten the leg thrice daily. When cracks and ulceration are present, adopt the wet cloths; but subsequently use one of the following to the sores: Permanganate of potash or phosphoric acid, one pint; water, six quarts. Or, chloride of zinc, one ounce; water, one gallon: employ thrice daily. If the granulations have sprouted, remove them with a knife, in three operations, (*full directions are given in the book;*) likewise always place in a loose box. Feed liberally; allow old beans; give a handful of ground oak-bark with each feed of oats. Night and morning exhibit liquor arsenicalis, one ounce; tincture of muriate of iron, one ounce and a half; porter or stout, one quart: one pint for the dose. Chopped roots; speared wheat; hay tea; cut grass, and exercise are all good for grease.

GUTTA SERENA.

Cause.—Over-exertion.

Symptoms.—Fixed dilatation of the pupil; a greenish hue of the eye; total blindness. Active ears; restless nostrils; head erect; high stepping; occasionally a rough coat in summer and a smooth coat in winter.

Treatment.—No remedy is possible.

HEART DISEASE.

Symptoms.—Auscultation. The beat of the heart to be seen externally; haggard countenance; pulse feeble; heart throbs; the beat of the carotid artery is to be felt; the regurgitation in the jugular is to be seen. The appetite is sometimes ravenous—often fastidious; the breathing is not accelerated excepting during pain; lameness of one leg; dropsical swellings; stopping short when on a journey; averse to turn in the stall; noises; yawns; sighs. Death always unexpected. No treatment is of any use.

HEMATURIA, OR BLOODY URINE.

Cause.—Unknown.

Symptoms. — Discoloration of the fluid. When the bleeding is copious, breathing is oppressed; the pupils of the eyes are dilated. Pulse is lost; head is pendulous; membranes are pale and cold. Lifting up the head produces staggering. Back roached; flanks tucked up; legs wide apart.

Treatment.—Be gentle. Act upon the report given. Give acetate of lead, two drachms, in cold water, one pint; or, as a ball, if one can be delivered. In a quarter of an hour repeat the dose, adding laudanum, one ounce, or powdered opium, two drachms. Repeat the physic till one ounce of acetate of lead has been given. Leave the horse undisturbed for two hours, if the symptoms justify delay. If not, dash pailfuls of cold water upon the loins from a height. Give copious injections of cold water. Pour half a pint of boiling water upon four drachms of ergot of rye. When cold, add laudanum, one ounce, and dilute acetic acid, four ounces. Give two of these drinks, and two cold enemas, of twenty minutes' duration. Suspend all treatment for eight hours, when the measures may be repeated. (*For after proceedings, see the article which is presented in the body of the book.*)

HIDE-BOUND.

Cause.—Neglect, or turning into a straw-yard for the winter.

Treatment.—Liberal food, clean lodging, soft bed, healthy exercise, and good grooming. Administer, daily, two drinks, composed of: Liquor arsenicalis, half an ounce; tincture of muriate of iron, one ounce; water, one pint. Mix, and give as one dose.

HIGH-BLOWING AND WHEEZING.

Habits which admit of no remedies.

HYDROPHOBIA.

Cause.—Bite from a rabid dog or cat.

Symptoms.—The horse is constantly licking the bitten place. A morbid change takes place in the appetite. Eager thirst, but inability to drink, or spasm at the sound or sight of water is exhibited. Nervous excitability; voice and expression of countenance altered. More rarely the horse—when taken from the stable—appears well. While at work, it stops and threatens to fall. Shivers violently, and is scarcely brought home when the savage stage commences. The latter development consists in the utmost ferocity, blended with a most mischievous cunning, or a malicious pleasure in destruction.

Treatment.—No remedy known. Confine in a strong place and shoot immediately.

HYDROTHORAX.

Cause.—Pleurisy or inflammation of the membrane lining the chest.

Symptoms.—The horse is left very ill. The next morning the animal is looking better; the pain has abated; the eye is more cheerful; but the flanks heave. A man is procured; he is told to strike the chest when the person listening on the other side says "now." The word is spoken, and a metallic ring follows. The pulse is lost at the jaw; the heart seems to throb through water. The horse has hydrothorax!

Treatment.—The first thing is to draw off the fluid. A spot between the eighth and ninth ribs is chosen, and the skin is pulled back; a small slit through the skin is made; into that opening an armed trocar is driven. When there is no resistance felt, the thorax has been entered; the stilet is withdrawn and the water flows forth. Use a fine trocar; take all the fluid you can obtain. Should the horse appear faint, with-

draw the canula, and in two hours again puncture the chest. Afterward the food must be prepared, and a ball administered night and morning, consisting of iodide of iron, one drachm; strychnia, half a grain; sulphate of zinc, half a drachm; extract of gentian and powdered quassia, a sufficiency.

IMPEDIMENT IN THE LACHRYMAL DUCT.

Cause.—A hay-seed or other substance getting into and becoming swollen within the duct.

Symptom.—Swollen lid and copious tears.

Treatment.—Inject, forcibly, a stream of water up the duct.

INFLUENZA.

Cause.—Unknown; but suspected to be generated by close stables. It is also episotic.

Symptoms.—Weakness and stupidity; local swellings; heat and pain in the limbs. Loss of appetite; rapid wasting; every part of the body is diseased. Youth most exposed, but no age exempt. Spring-time the general season, but an attack may ensue at any period of the year. The following symptoms are somewhat uncertain: Pendulous head; short breath; inflamed membranes; swollen lips; dry mouth; enlarged eyelids; copious tears; sore throat; tucked-up flanks; compressed tail; filled legs; big joints; lameness and hot feet. Auscultation may detect a grating sound at the chest, or a noise like brickbats falling down stairs, within the windpipe. When the last is audible, there is always a copious discharge. Sometimes one foot is painful; purgation has been seen; but constipation is generally present, and the horse usually stands throughout the disease. Always suspect influenza when it is in the neighborhood, and the membranes are yellow or inflamed.

Treatment.—Move to a well-littered, warm, loose box. Suspend a pail of gruel from the wall; change the gruel thrice daily; sprinkle on the tongue, night and morning, calomel, one scruple; wash this down with sulphuric ether, one ounce; laudanum, one ounce; water, half a pint. If weakness increases, double the quantity of ether and of laudanum. When the pulse loses all wiry feeling, and the discharge becomes copious, give from the hand some bread, on which there is a little salt; when the cough appears, give a pot of stout daily. Beware of purgatives or active treatment.

INJURIES TO THE JAW.

Causes.—Pulling the snaffle; abuse of the bit; too tight a curb-chain.

Symptoms.—Discoloration before or behind the tush; bruise under the tongue or upon the roof of the mouth; tumor and bony growth upon the margin of the lower jaw.

Treatment.—Cut upon the discoloration till the knife reaches the bone; if fetor is present, inject the chloride of zinc lotion; keep the wounds open, that the injured bone may come away.

LACERATED EYELID.

Causes.—Nails in the gangway, or the horses playfully snapping at each other.

Treatment.—Bathe with cold water till the bleeding ceases; allow the separated parts to remain until the divided edges are sticky; bring together with sutures; place the horse in the pillar-reins till the healing is perfected.

LACERATED TONGUE.

Causes.—Sticking to a horse when giving physic; making a "chaw" of the halter-rope.

Treatment.—Insert no sutures; if the arteries are excised, cut off the hanging portion of the tongue; should the vessels have escaped, allow all to remain; feed on gruel and soft food; after every meal wash out the mouth with the solution ordered for aphtha, or with the chloride of zinc lotion.

LAMPAS.

A groom's fancy.

LARYNGITIS.

Cause.—Foul stables.

Symptoms.—Dullness; enlargement over the larynx; stiff neck; short and suppressed cough; breathing hurried and catching; pulse full; nasal membrane almost scarlet.

Treatment.—Give drachm doses of tincture of aconite, in wineglasses of water every half hour, to amend the pulse. Refrain from bleeding. Put on a steaming nose-bag, and keep it almost constantly applied, to amend the breathing. Fix some hay, soaked in boiling water, upon the

throat, by means of an eight-tailed bandage. Give, very carefully, the following drink, thrice daily: Infusion of squills, two ounces; infusion of ipecacuanha, two ounces; infusion of aconite, half an ounce; extract of belladonna, one drachm, rubbed down with a pint of warm water. Place in a cool, well-aired, thickly-littered, loose box; bandage the legs; clothe the body; give only gruel for food, changing it thrice daily. On improvement, a little moist food may be allowed. When improvement is confirmed, put a seton under the throat. Blister the throat; pick and damp the hay; sift, bruise, and scald the oats. Employ no lowering agents.

LARVA IN THE SKIN.

Causes.—Turning out to grass. The fly lays its egg upon the hair, the warmth of the body hatches it, and the larva enters the skin. The next summer a tolerably large abscess is established, the insect occupying its center.

Treatment.—With a lancet open the abscess, and squeeze out the larva. Dab the wound with a lotion made of chloride of zinc, one grain; water, one ounce.

LICE.

Causes.—Filth and debility.

Treatment.—Rub the skin with some cheap oil or grease. Wash, and then look for other diseases, as hide-bound, mange, etc.

LAMINITIS, (SUBACUTE.)

Causes.—Age; long standing in the stable; over-work, and stinted diet.

Symptoms.—First noticed by the manner of going upon the heels of the fore feet.

Treatment.—Get into slings. Remove the shoes. Do not bleed. If costiveness is present open the bowels with green-meat, but do not purge. Give a quart of stout, night and morning. Allow two drinks per day, each consisting of one ounce of sulphuric ether and half a pint of water; half-drachm doses of belladonna, to allay pain; sound oats and old beans, both crushed, for food; water to be whitened; no hay. No limit to this food, but five feeds to be given if the horse will eat so much.

LUXATION OF THE PATELLA.

Cause.—Bad food and constitutional weakness.

Symptoms.—The horse stops short, and has one of the hind legs extended backward. A swelling upon the outer side. The pastern is flexed, the head raised, and the animal in great pain. In colts it will sometimes appear on the slightest cause.

Treatment.—For colts, any flurry may restore the bone; but feed well, to eradicate the weakness. For horses, get into a shed, and, throwing a rope, one end of which has been fixed to the pastern, have the leg dragged forward while some one pushes the bone into its place. A man should be put to keep the bone in its situation for some hours. Give strengthening food, and do not use for six weeks subsequently.

MALLENDERS AND SALLENDERS.

Cause.—Neglect.

Symptoms.—Scurf upon the seats of flexion; mallenders at the back of the knee, and sallenders at the front of the hock.

Treatment.—Cleanliness. Give the liquor arsenicalis drink, recommended for grease; change the groom; rub the parts with this ointment: Animal glycerin, one ounce; mercurial ointment, two drachms; powdered camphor, two drachms; spermaceti, one ounce. If cracks appear, treat as though cracked heels were present.

MANGE.

Causes.—Starvation; bad lodging and no grooming; turning out to grass.

Symptoms.—Scurf about the hairs of the mane; the hair falls off in patches; the skin is corrugated; a few hairs remain upon the bare places, and these adhere firmly to the skin; scrubbing the body against posts; sores and crusts. To test its presence, scratch the roots of the mane and the horse will exhibit pleasure.

Treatment.—Place the horse in the sunshine, or in a heated house, for one hour; then whisk thoroughly, to remove scurf and scabs; then rub in the following liniment: Animal glycerin, two parts; oil of tar, two parts; oil of turpentine, half a part; oil of juniper, half a part. Mix. Leave on for two days; wash; anoint again; wash; anoint and wash once more, always leaving the liniment on for two clear days.

MEGRIMS.

Cause.—Unknown.

Symptoms.—The horse suddenly stops; shakes the head; strange stubbornness may be exhibited, followed by a desire to run into dangerous places. Then ensues insensibility, accompanied by convulsions.

Treatment.—Throw up on the first fit. Give a long rest, and try to amend the constitution.

MELANOSIS.

Cause.—Unknown. The disease only attacks gray horses which have become white.

Symptoms.—It appears as a lump of uncertain form, size, and situation. The swelling, if cut into, discloses a cartilaginous structure, dotted here and there with black spots. Do not use the knife unless the swelling impede the usefulness, or should be peculiarly well placed for operation. Feel the tail. A pimple on the dock is an almost certain sign of melanosis, which disease affects the internal organ even more virulently than it attacks the external parts. As melanosis proceeds, all spirit departs, and the animal is at length destroyed as utterly useless.

Treatment.—Let the tumor alone. Forbid all use of the curry-comb. Dress very long and very gently with the brush only. Twice a week anoint the body with animal glycerin, one part; rose-water, two parts.

NASAL GLEET.

Causes.—Decayed molar tooth; kicks from other horses; injuries to the frontal bones.

Symptoms.—Distortion of the face; partial enlargement and softening of the facial bones; irregular discharge of fetid pus from one nostril. The discharge is increased, or brought down by feeding off the ground, or by trotting fast.

Treatment.—Surgical operation, with injection of a weak solution of chloride of zinc. Also give daily a ball composed of balsam of copaiba, half an ounce; powdered cantharides, four grains; cubebs, a sufficiency. If the foregoing should affect the urinary system, change it for half-drachm doses of extract of belladonna, dissolved in a wineglass of water. Give these every fourth day, and on such occasions repeat the belladonna every hour, until the appetite has been destroyed.

NASAL POLYPUS.

Symptoms.—An enlarged nostril; a copious mucous discharge; signs of suffocation, if the free nostril be stopped; a cough generally forces down the growth.

Treatment.—Surgical operation, which removes the tumor.

NAVICULAR DISEASE.

Causes.—Frog pressure, and not shoeing with a leathern sole. The unprotected foot treads on a rolling stone, and navicular disease is the result.

Symptoms.—Acute lameness; this disappears, but may come again in six or nine months. Acute lameness is then present for a longer time, while the subsequent soundness is more short. Thus the disease progresses, till the horse is lame for life. The pain in one foot causes greater stress upon the sound leg, and from this cause both feet are ultimately affected. The foot is pointed in the stable. The bulk diminishes, while the hoof thickens and contracts. The horse, when trotting, takes short steps, and upon the toe, going groggily.

Treatment.—Feed liberally upon crushed oats and old beans. Soak the foot every other night in hot water. Afterward bandage the leg, fix on tips, and having smeared the horn with glycerin, put on a sponge boot. Rest very long—six months in the first instance—and then give three months agricultural employment. In bad cases resort to neurotomy, but do so upon the second attack of lameness; because continued disease disorganizes the internal structures of the hoof, and also occasions the sound foot to be attacked by navicular disease.

NEPHRITIS, OR INFLAMMATION OF THE KIDNEYS.

Causes.—Bad provender, or niter in a mash, and long or fast work upon the following day.

Symptoms.—Hard, quick pulse; short breathing; pallid membranes; looking at the loins; depressed head; roached back; hind legs straddling; scanty urine; refusing to turn in the stall; and crouching under pressure on the loins. Subsequently, pus is voided with the water. If the urine has a fetid odor, if blood be present, if the pulse grows quicker, if pressure gives no pain, and if the perspiration has a urinous smell, death is near at hand. To be certain of nephritis, insert the arm up the rectum and move the hand toward the kidneys.

Treatment.—Rub mustard into the skin of the loins. Cover it over to prevent it becoming dry. Apply fresh sheepskins as soon as these can be procured. Inject warm linseed tea every hour. A ball composed of Croton farina, two scruples; extract of belladonna, half a drachm; treacle and linseed meal, a sufficiency, should be given immediately; one scruple of calomel; one drachm of opium should be sprinkled on the tongue every hour. A pail of linseed tea may be placed in the manger. Feed on linseed tea, and mind the oats—when allowed—are very good. While the pain is acute, give, thrice daily, a ball composed of extract of belladonna, half a drachm; crude opium, two drachms; honey and linseed meal, of each a sufficiency. When the pain is excessive, repeat the above ball every hour. Should the pulse increase and become wiry, a scruple of aconite should be thrown upon the tongue every half hour until the artery softens, or the animal becomes affected with the drug.

No cure is to be expected; the disease may be arrested, but the kidney must be left in an irritable state.

OCCULT SPAVIN.

Cause.—Treading on a stone.

Symptoms.—Sudden lameness, which never departs, but in the end becomes very bad. The disease is always worse after work, and better after rest. The foot is without disease, and the leg is not hot or painful; yet the lameness continues and gets worse. The leg is snatched up in the walk, and the foot is not turned outward.

Treatment.—Get the horse into slings. Rub the front of the hock with an embrocation composed of compound soap liniment, sixteen ounces; tincture of cantharides, liquor ammonia and laudanum, of each two ounces. After the joint is embrocated, wrap it round with flannel, held upon the hock with elastic rings. Give three feeds of corn, a few old beans, and sweet hay daily. After the horse bears upon the diseased limb, allow the slings to remain for three months. Three months after it has left the slings, put to gentle work, but mind the labor is not in any way exhausting. The work must not be full till six months have elapsed. Keep the bowels regular with bran mashes and green-meat. If all treatment fail, cast the horse; retract the injured limb; make a small puncture, and inject one ounce of dilute spirits of wine, in which half a drachm of iodine has been dissolved. Place the horse in slings, and apply cold water to the hock. When the pulse is quiet, feed very liberally.

OPEN SYNOVIAL CAVITIES.

Causes.—The pride of gentility, which apes what is not, and tries to pass off a horse with a ewe neck for an animal with a lofty crest. The quadruped, being in pain and constraint, necessarily trips, and cannot save itself from falling. Kicking in harness; running away and being run into.

Symptoms.—Air being admitted creates inflammation; inflammation causes constitutional irritability. Bursæ are attended with least danger when punctured; sheaths of tendons are more dangerous; joints are by far the most serious. Judge which is opened by the extent of the wound and the quantity of synovia released.

Treatment.—Exercise gentleness toward the injured animal. Wash as was directed for broken knees. Examine if there be any sac or bag into which dirt could have entered. If one exists, place a large spatula under the knee; then take a knife with a sharp point, but with its edge blunted the two posterior thirds of its length; guard the point with a lump of beeswax; introduce this into the sac and drive the point through the bottom of the bag. An opening will thereby be created, through which the pus and dirt will gravitate. If the probe enters the knee of the flexed leg, unopposed, three-quarters of an inch, push it no farther; be satisfied the cavity is opened.

OPEN SYNOVIAL JOINTS.

Treatment.—Proceed in the first instance as for broken knees. Then give a drink composed of sulphuric ether and laudanum, of each one ounce; water, half a pint; look to the comfort. Should the eye rove, the breathing be hard, ears active, and the horse start at sounds, hourly repeat the drink before recommended, till these symptoms abate. Then place in a stall and allow four drinks and two pots of stout daily. Use the arnica lotion as for broken knees, during the first three and a half days. At the end of that time turn the horse gently round in the stall, and let it stand with its head toward the gangways. Place the slings before the horse and leave the animal to contemplate them for half an hour. Then, with extreme gentleness, fix them; but do not pull the cloth up to the abdomen. Leave a pail of water suspended from one pillar, and feed from a high trough, supported upon light legs. Let the horse be watched night and day for the remainder of the week. When the animal is at ease in the slings, these may be heightened till the cloth lightly touches, but not presses, against the belly. With the

slings change to the chloride of zinc lotion, one scruple to the pint of water; have this frequently applied during the day. It will coagulate the albumen and promote the healing of the wound. The albumen will accumulate as a large ball in front of the injury; do not touch it. Allow it to fall off. The cure is nearly perfect when it falls. When pressure can be endured, the slings may be removed; though the healing process should be confirmed before the animal is allowed to stand near anything against which it could strike the knee.

OPERATIONS.

Admit of no abbreviation; they should never be hastily undertaken; they should be only resorted to after time has been allowed for thought, and opportunity has been afforded for more than one perusal of the directions detailed in this book.

OSSIFIED CARTILAGES.

Cause.—Battering the foot upon hard roads.

Symptoms.—Of little consequence in heavy horses unless accompanied with ring-bone. The disease causes lameness in light horses used for fast work.

Treatment.—Rest; liberal food; and small blisters to the foot immediately above the sides of the hoof.

OVERREACH.

Cause.—When a good stepper is very tired, this accident sometimes happens—the coronet of the fore foot upon the outer side being severely wounded by the inside of the hind shoe.

Symptom.—A severe wound and a large slough, probably followed by a false quarter.

Treatment.—Feed liberally, and bathe the injury thrice daily with the chloride of zinc lotion, one grain to the ounce of water.

PARROT-MOUTH.

Cause.—Natural malformation.

Symptoms.—Projecting upper teeth; an inability to graze or to clean out the manger.

PARTIAL PARALYSIS.

Cause.—Violent exertion.

Symptom.—One hind leg gets in the way of the other, and threatens to throw the animal down.

Treatment.—A loose box; warm clothing; good grooming; warmth to loins; regulate the bowels with mashes and green-meat; absolute rest. Give the following ball night and morning: Strychnia, half a grain, (gradually work this medicine up to one grain and a half;) iodide of iron, one grain; quassia powder and treacle, a sufficiency

PHLEBITIS, OR INFLAMMATION OF THE VEIN.

Cause.—Motion. Bleeding in the neck and turning out to grass; or from either of the limbs, and then forcing the animal to walk.

Symptoms.—The earliest indication is a separation of the lips of the wound and the presence of a small quantity of thin discharge. A small swelling then takes place, and the vein hardens above the puncture. Then abscesses form along the course of the vessel. These mature, burst, send forth a contaminated pus. The abscesses are united by sinuses. If these signs are neglected, a dark discharge resembling decayed blood issues from the numerous wounds and soils the neck. Dullness ensues; the brain becomes affected; and the horse perishes phrenitic.

Treatment.—Remove the pin and apply a blister. Another may be required. In bad cases, blister must follow blister, but not be rubbed in. A little oil of cantharides should be put over the sore with a paste-brush. Place in a loose box and litter with tan; feed on slops, which require no mastication. Let the horse remain there and be so fed for six weeks subsequent to the cessation of all treatment. Then give a little exercise at a slow pace, gradually augmented. At the end of three months the horse may do slow work. But the horse should not wear a collar or go into the shafts before the expiration of six months.

PHRENITIS.

Cause.—Unknown.

Symptom.—Heaviness, succeeded by fury in excess, but without any indication of malice.

Treatment.—Bleed from both jugulars till the animal drops. Then pin up, and give a purgative of double strength. Follow this with

another blood-letting, if necessary, and scruple doses of tobacco; half-drachm doses of aconite root; or drachm doses of digitalis—whichever is soonest obtained. But whichever is procured must be infused in a pint of boiling water, and, when cool and strained, it ought to be given every half hour till the animal becomes quiet. But the probable result is by no means cheering, even if death is by these means avoided.

PLEURISY.

Causes.—Over-exertion; blows; injuries; cold.

Symptoms.—These are quickly developed. The pulse *strikes* the finger; pain continuous; agony never ceases; horse does not feed. Body hot; feet cold; partial perspirations. Muscles corrugated in places; cough, when present, suppressed and dry; auscultation detects a grating sound and a dull murmur at the chest. Pressure between the ribs produces great pain or makes the animal resentful. The head is turned very often toward the side; the fore foot paws; the breathing is short and jerking.

Treatment.—Should be active. Bleed, to ease the horse; place in a loose box; bandage the legs; leave the body unclothed. Give, every quarter of an hour, a scruple of tincture of aconite in a wineglass of warm water. When pulse has softened, give, every second hour, sulphuric ether and laudanum, of each one ounce; water, half a pint. Do not bleed a second time. When the pulse and pain are amended, introduce the steaming apparatus. Do nothing for the bowels. Place luke-warm water within easy reach of the head, and give nothing more while the disease rages. When the disease departs, return with caution to full food. After the affection subsides, blister throat and chest. If the horse is costive, administer enemas; or a bundle of cut grass may be presented with the other food.

PNEUMONIA.

Causes.—Fat; irregular work; and sudden exertion.

Symptoms.—Breathing labored; oppressed pulse; partial consciousness; giddiness. Standing with outstretched legs; head and ears dejected; coat rough; extremities and body cold; visible membranes discolored; bowels costive; feeling half dead; and general oppression.

Treatment.—Bleed but once; take only blood sufficient to restore consciousness; do not attempt to obtain blood, if the liquid flows black and thick. Place in a loose box strown with damp tan; take off the shoes; place water within easy reach; no food. If winter, clothe; then

introduce steam; when the steam is abundant, take off the clothes. Give solution of aconite root, half an ounce; sulphuric ether, two ounces; extract of belladonna, (rubbed down with half a pint of water,) one drachm. Repeat the drink three times each day. When the pulse improves, withdraw the aconite; when the breathing amends, abstract the belladonna; or increase either as pulse or breathing becomes worse. Allow only hay tea, with a little oatmeal in it, until the disease abates. On amendment, cautiously increase the food. Lying down is the first sign of improvement. Do not disturb the animal: it must require rest, having stood throughout the attack.

POLL EVIL.

Causes.—Hanging back in the halter; hitting the poll against the beam of the stable door; blows on the head; and any external injury.

Symptoms.—The nose is protruded and the head kept as motionless as possible; the animal hangs back when it is feeding from the manger. Pressure or enforced motion excites resistance. Swelling: the swelling bursts in several places, from which exude a foul, fistulous discharge. Pus has been secreted; confinement has caused it to decay; while motion and fascia have occasioned it to burrow.

Treatment.—Paint the part lightly with tincture of cantharides, or acetate of cantharides. Do this daily till vesication is produced; then stop. When the swelling enlarges, open the prominent or soft places. Allow the pus to issue; then cut down on the wound till the seat of the disease is gained. Use a proper knife, and include as many pipes as possible in one clean cut. All others should join this. Empty out all concrete matter. Wash the cavity with cold water. Excise all loose pieces of tendon and all unhealthy flesh. Moisten the sore with the chloride of zinc lotion, one grain to the ounce, and cover the wound with a cloth dipped in the solution of tar. If the disease has burst, still include the pipes in one smooth incision; clean out the concrete pus, and treat as has been directed. Spare the ligament which lies under the mane; and work in a breast-strap after recovery.

PRICK OF THE SOLE.

Cause.—Generally the smith's carelessness when shoeing the horse.

Symptom.—Great lameness.

Treatment.—Withdraw the nails of the shoe. If one is wet, cut down on that hole until the sensitive sole is exposed. If not very lame, treat with lotion of chloride of zinc, one grain to the ounce of water. If very lame, treat as if the injury were a suppurating corn.

PRURIGO.

Cause.—Heat of body.

Symptom.—Itchiness. The horse rubs off hair; but never exposes a dry, corrugated surface.

Treatment.—Take away some hay. Give two bundles of grass per day. Allow two bran mashes each day till the bowels are open. Apply either of the following washes: Animal glycerin, one part; rose-water, two parts. Or, sulphuric acid, one part; water, ten parts. Or, acetic acid, one part; water, seven parts. Drink: Liquor arsenicalis, one ounce; tincture of muriate of iron, one ounce and a half; water, one pint—half a pint to be given every night. Withdraw the drink a week after the disease has disappeared. Allow a pot of porter and an extra feed of oats each day.

PUMICE FOOT.

Cause.—An animal reared on marshy land, having high action, batters the feet upon London stones.

Symptoms.—Bulging sole; weak crust; strong bars, and good frog.

Treatment.—The only relief possible is afforded by a bar shoe of the dish kind, and a leathern sole. The constant use of equal parts of animal glycerin and tar is also beneficial to the hoof.

PURPURA HEMORRHAGICA.

Cause.—Unknown. Universal congestion.

Symptoms.—The attack is sudden. The body, head, and limbs enlarge; consciousness is partially lost. The horse stands, and the breathing is quickened. Through the skin there exudes serum with blood. The nostrils and lips enlarge, and part of the swollen tongue protrudes from the mouth. The appetite is not quite lost, although deglutition is difficult. Thirst is great.

Treatment.—Bleed till the animal appears relieved. A second venesection may be demanded, but it should be adopted with caution. Give half an ounce of chloroform in a pint of linseed oil, in the first stage. Repeat the dose in half an hour. No amendment following, give two ounces of sulphuric ether in one pint of cold water. In half an hour repeat the dose if necessary. Perform tracheotomy to ease the breathing. Incise the protruding tongue. Squeeze out the fluid and return the organ to the mouth. Should the skin slough, bathe the part with solution of chloride of zinc, one grain to the ounce of water.

QUITTOR.

Causes.—Confined pus from suppurating corn; or prick of the sole; matter results, and this issues at the coronet. Or from injury to the coronet, generating pus, and this burrowing downward, as it cannot pierce the coronary substance. The secretion may also penetrate the cartilage, and thus establish sinuses in almost every possible direction.

Symptoms.—The horse is very lame. The animal is easier after the quittor has burst. Probe for the sinuses. If, after the superficial sinuses are treated, among the creamy pus there should appear a dark speck of albuminous fluid, make sure of another sinus, probably working toward the central structures of the foot.

RHEUMATISM.

Cause.—Generally follows other disorders, as influenza, chest affections, and most acute diseases. Very rarely does it appear without a forerunner.

Symptoms.—Swelling of particular parts, generally the limbs; heat and acute lameness. The disorder is apt to fly about the body. The synovia is always increased when the joints are attacked. The pulse and breathing are both disturbed by agony.

Treatment.—Lead into a loose box; fill the place with steam. (See page 313.) Get ready the slings; put the belly-piece under the horse, but do not pull it up so as to lift the legs from the ground. Keep the steam up for one hour. Then have several men with cloths ready to wipe the animal dry; mind they are perfectly silent. Next rub into the diseased parts the following: Compound soap liniment, sixteen ounces; tincture of cantharides, liquor ammonia, and laudanum, of each two ounces. Afterward incase the limbs in flannel. (See page 314.) Then give a bolus composed of powdered colchicum, two drachms; iodide of potassium, one drachm; simple mass, a sufficiency. Should the attack succeed upon other diseases, the diet must be supporting, everything being softened by heat and water. Next morning repeat the steaming, and give calomel, a scruple; opium, two drachms. At night steam again, and repeat the first bolus. Should the horse be fat, withdraw all corn, if the strength can do without it.

RING-BONE.

Cause.—Dragging heavy loads up steep hills.

Symptoms.—A roughness of hair on the pastern and a bulging forth

of the hoof. A want of power to flex the pastern. An inability to bring the sole to the ground only upon an even surface. Loss of power and injury to utility.

Treatment.—In the first stage apply poultices, with one drachm of camphor and of opium. Afterward rub with iodide of lead, one ounce; simple ointment, eight ounces. Continue treatment for a fortnight after all active symptoms have subsided, and allow liberal food and rest; work gently when labor is resumed.

RING-WORM.

Symptoms.—Hair falls off in patches, exposing a scurfy skin. The scurf congregates on the bare place about the circumference, which is apt to ulcerate.

Treatment.—Be very clean. Wash night and morning, and afterward apply the following ointment: Animal glycerin, one ounce; spermaceti, one ounce; iodide of lead, two drachms. Many other things are popular. For a detailed list of these, see the body of the book. A drink is likewise of use when employed with the ointment. Liquor arsenicalis, one ounce; tincture of muriate of iron, one ounce and a half; water, one quart. Mix, and give every night half a pint for a dose. Should the ulceration prove obstinate, apply permanganate of potash, half an ounce; water, three ounces. Or, chloride of zinc, two scruples; water, one pint. Moisten the parts with a soft brush six times daily. Feed well, and do not work for one month.

ROARING.

Causes.—The bearing-rein; the folly of fashion.

Symptom.—A noise made at each inspiration.

Treatment.—No remedy. The cabman's pad is the only alleviation: that conceals and does not cure the disease.

RUPTURE, OR STRICTURE OF THE ŒSOPHAGUS.

Cause.—The use of the butt-end of a carter's whip, which either rends the lining membrane of or ruptures the gullet.

Symptom of Rupture.—The body becomes distended with gas, and death ensues. *Of Rent Membrane.*—This induces a disinclination to feed, as the first symptom. A stricture is formed. Excessive hunger. Distention of the tube. A large sac is developed out of the stretched membrane above the stricture. Then, after feeding, the animal fixes the

neck, and returns the masticated food through the mouth and nostrils. Accompanying loss of condition and failure of strength.

Treatment.—Feed on prepared soft food: though the horse is generally not worth its ordinary keep at the stage when this is required.

SANDCRACK.

Causes.—Bad health, provoking imperfect secretion. Treading for any length of time upon a very dry soil.

Symptoms.—Quarter crack occurs on light horses upon the inner side of the hoof. It usually commences at the coronet, goes down the foot, and reaches to the laminæ. Toe crack happens in heavy wheelers, and is caused by digging the toe into the ground when dragging a load up hill. From the sensitive laminæ, when exposed, fungoid granulations sometimes sprout, which, being pinched, produce excessive pain and acute lameness.

Treatment.—Always pare out the crack, so as to convert it into a groove. When the crack is partial, draw a line with a heated iron above and below the fissure. If granulations have sprouted, cleanse the wound with chloride of zinc lotion, one grain to the ounce of water, and then cut them off. Afterward place the foot in a poultice. Subsequently pare down the edges of the crack while the horn is soft. Use the lotion frequently. Draw lines from the coronet to the crack, so as to cut off communication between the fissure and the newly-secreted horn. Shoe with a bar shoe, having the seat of crack well eased off and also a clip on either side. If the horse must work, lay a piece of tow saturated with the lotion into the crack: bind the hoof tightly with wax-end. Tie over all a strip of cloth, and give this a coating of tar. When the horse returns, inspect the part. Wash out any grit with the chloride of zinc lotion. Feed liberally on prepared food.

SCALD MOUTH.

Cause.—Powerful medicine, which burns the lining membrane of the mouth.

Symptom.—A dribbling of saliva, with constant motion and repeated smacking of the lips.

Treatment.—Give soft food, and use the wash recommended for aphtha.

SEEDY TOE.

Cause.—Weakness, inducing an imperfect secretion of horn.

Symptom.—A separation between the crust of the coronet and the soft horn of the laminæ, commencing at the toe of the foot.

Treatment.—Remove the shoe. Probe the fissure, which will be exposed. Cut away all the separated crust. Throw up until the removed portion has grown again. Feed liberally.

SIMPLE OPHTHALMIA.

Causes.—Slashing with the whip over the head; hay-seeds falling into the eyes; horses biting at each other in play; blows, etc.

Symptoms.—Tears; closed eyelid; the ball of the eye becomes entirely or partially white.

Treatment.—Remove any foreign body; fasten a cloth across the forehead; moisten it with a decoction of poppy-heads to which some tincture of arnica has been added. If a small abscess should appear on the surface of the eye, open it, and bathe with chloride of zinc lotion. Should inflammation be excessive, puncture eye vein, and place some favorite food on the ground.

SITFAST.

Causes.—Ill health; badly-fitting saddle; too energetic a rider; loose girths; ruck in the saddle-cloth.

Symptom.—Like a corn on the human foot, but the hard, bare patch is surrounded by a circle of ulceration.

Treatment.—The knife should remove the thickened skin. Chloride of zinc, one grain; water, one ounce, to the wound. Attend to the bowels. Feed liberally; exercise well; and give, night and morning, liquor arsenicalis, half an ounce; tincture of muriate of iron, three-quarters of an ounce; water, one pint. Mix, and give.

SORE THROAT.

Causes.—In colts, change from freedom to work, from the field to the stable, is the cause. Sore throat, however, may be caused by close stables, or be an indication of some greater disease.

Symptoms.—Perpetual deglutition of saliva; want of appetite; inability to swallow a draught of liquid—the fluid returning partly by the nostrils, and each gulp being accompanied with an audible effort.

Treatment.—Forbear all work; clothe warmly; house in a large, well-littered, loose box. Gruel for drink; green-meat, with three feeds of bruised and scalded oats, also beans, daily. If the bowels are obstinate, administer a drink composed of solution of aloes, four ounces; essence of anise seed, half an ounce; water, one pint. Should the throat not amend, dissolve half an ounce of extract of belladonna in a gallon of water; hold up the head: pour half a pint of this preparation into the mouth, and in thirty seconds let the head down; do this six or eight times daily. No improvement being observed, try permanganate of potash, half a pint; water, one gallon: to be used as directed in the previous recipe. Still no change being remarked, prepare chloride of zinc, three drachms; extract of belladonna, half an ounce; tincture of capsicums, two drachms; water, one gallon.

All being useless, give two pots of stout daily, and blister the throat.

No alteration ensuing, cast the horse, and mop out the fauces with a sponge which is wet with nitrate of silver, five grains; water, one ounce. Give a ball daily composed of oak-bark and treacle.

If none of these measures succeed, the throat must be complicated with some other disease.

SPASM OF THE DIAPHRAGM.

Cause.—Imprudently riding too far and too fast.

Symptom.—Distress, and a strange noise heard from the center of the horse.

Treatment.—Pull up; cover the horse's body; lead to the nearest stable. Give as soon as possible a drink composed of sulphuric ether, two ounces; laudanum, one ounce; tincture of camphor, half an ounce; cold water or gruel, one pint. Give four drinks, one every quarter of an hour; then another four, one every half hour, and then at longer intervals as the animal recovers. When first brought in, procure five steady and quiet men; give a bandage each to four of them, and order them silently to bandage the legs; give a basin and sponge to the other, and bid him sponge the openings to the body. This done, and sweat and dirt removed, clothe perfectly after the skin is quite dry.

SPASM OF THE URETHRA.

Cause.—Acridity in the food or water.

Symptoms.—Small and violent emissions; straddling gait. Roached back; pain; total suppression of urine.

Treatment.—Insert the arm up the rectum, and feel the gorged blad-

der. Give, by the mouth, four ounce doses of sulphuric ether and of laudanum mixed with a quart of cold water, and, as injection, mixed with three pints of cold water. Repeat these medicines every quarter of an hour until relieved. If no physic be at hand, open both jugular veins, and allow the blood to flow until the horse falls. Should not the urine then flow forth, insert the arm and press upon the bladder.

SPASMODIC COLIC—FRET—GRIPES.

Causes.—Fast driving; change of water; change of food; getting wet; fatiguing journeys; aloes; and often no cause can be traced.

Symptoms. 1*st Stage.*—Horse is feeding; becomes uneasy; ceases eating; hind foot is raised to strike the belly; fore foot paws the pavement; the nose is turned toward the flank, and an attack of fret is recognized. 2*d Stage.*—Alternate ease and fits of pain; the exemptions grow shorter as the attacks become longer; the horse crouches; turns round; then becomes erect; pawing, etc. follow; a morbid fire now lights up the eyes. 3*d Stage.*—Pains lengthen; action grows more wild; often one foot stamps on the ground; does not feed, but stares at the abdomen; at last, without warning, leaps up and falls violently on the floor; seems relieved; rolls about till one leg rests against the wall; should no assistance be now afforded, the worst consequences may be anticipated.

Treatment.—Place in a loose box, guarded by trusses of straw ranged against the walls. Give one ounce each of sulphuric ether and of laudanum in a pint of cold water, and repeat the dose every ten minutes if the symptoms do not abate. If no improvement be observed, double the active agents, and at the periods stated persevere with the medicine. A pint of turpentine, dissolved in a quart of solution of soap, as an enema, has done good. No amendment ensuing, dilute some strong liquor ammonia with six times its bulk of water, and, saturating a cloth with the fluid, hold it by means of a horse-rug close to the abdomen. It is a blister; but its action must be watched or it may dissolve the skin. If, after all, the symptoms continue, there must be more than simple colic to contend with.

SPAVIN.

Cause.—Hard work.

Symptom.—Any bony enlargement upon the lower and inner side of the hock. Prevents the leg being flexed. Hinders the hoof from being turned outward. Causes the front of the shoe to be worn and the toe of the hoof to be rendered blunt by dragging the foot along the ground.

Leaves the stable limping; returns bettered by exercise. Sickle hocks, or cow hocks, are said to be most subject.

Treatment.—View the suspected joint from before, from behind, and from either side. Afterward feel the hock. Any enlargement upon the seat of disease, to be felt or seen, is a spavin. Feed liberally, and rest in a stall. When the part is hot and tender, rub it with belladonna and opium, one ounce of each to an ounce of water. Apply a poultice. Or put opium and camphor on the poultice. Or rub the spavin with equal parts of chloroform and camphorated oil. The heat and pain being relieved, apply the following, with friction: Iodide of lead, one ounce; simple ointment, eight ounces.

SPECIFIC OPHTHALMIA.

Cause.—The fumes of impure stables.

Symptoms.—A swollen eyelid; tears; a hard pulse; sharp breathing; a staring coat; a clammy mouth; the nasal membrane is inflamed or leaden colored; the lid can only be raised when in shadow. The ball of eye reddened from the circumference; the pupil closed; the iris lighter than is natural. The disease may change from eye to eye; the duration of any visitation is very uncertain; the attacks may be repeated, and end in the loss of one or both eyes. If one eye only is lost, the remaining eye generally strengthens.

Treatment.—Remove from the stable and place in a dark shed. Open the eye vein, and puncture the lid if needed; put a cloth saturated with cold water over both eyes. If the horse is poor, feed well; if fat, support, but do not cram; if in condition, lower the food. Sustain upon a diet which requires no mastication. Give the following ball twice daily: Powdered colchicum, two drachms; iodide of iron, one drachm; calomel, one scruple; make up with extract of gentian. So soon as the ball affects the system, change it for liquor arsenicalis, three ounces; muriated tincture of iron, five ounces. Give half an ounce in a tumbler of water twice daily. See the stable is rendered pure before the horse returns to it.

SPLINT.

Causes—Early and hard work; blows, kicks, etc.

Symptom.—Any swelling upon the inner and lower part of the knee of the fore leg, or any enlargement upon the shin-bone of either limb. On the knee they are important, as they extend high up. On the shin they are to be dreaded, as they interfere with the movements of the ten-

dons. All are painful when growing, and in that state generally cause lameness.

Treatment.—Feel down the leg. Any heat, tenderness, or enlargement is proof of a splint. If, on the trot, one leg is not fully flexed, or the horse "dishes" with it, it confirms the opinion. Time and liberal food are the best means of perfecting them. When they are painful, poultice, having sprinkled on the surface of the application one drachm each of opium and of camphor. Or rub the place with one drachm of chloroform and two drachms of camphorated oil. Periosteotomy (see *Operations*) is sometimes of service. When a splint interferes with a tendon, the only chance of cure is to open the skin and to cut off the splint, afterward treating the wound with a lotion composed of chloride of zinc, one grain; water, one ounce. To check the growth of a splint, rub it well and frequently with iodide of lead, one ounce; simple ointment, eight ounces.

SPRAIN OF THE BACK SINEWS.

Cause.—Cart-work upon a hilly country.

Symptom.—Gradual heightening of the hind heel.

Treatment.—The only possible relief is afforded by an operation—"division of the tendons."

STAGGERS.

Sleepy Staggers and Mad Staggers are only different stages of the same disorder.

Cause.—Over-gorging.

Symptoms.—Excessive thirst; dullness or sleepiness; snoring; pressing the head against a wall. Some animals perish in this state; others commence trotting without taking the head from the wall, and such generally die, but sometimes recover. Other horses quit the sleepy state; the eyes brighten; the breath becomes quick. Such animals exhibit the greatest possible violence, but without the slightest desire for mischief.

Treatment.—Allow no water. Give a quart of oil. Six hours afterward give another quart of oil, with twenty drops of croton oil in it, should no improvement be noticed. In another six hours, no amendment being exhibited, give another quart of oil, with thirty drops of croton oil in it. After a further six hours, repeat the first dose, and administer the succeeding doses, at the intervals already stated, until the appearance changing indicates that the body has been relieved.

For the full development of the mad stage no remedies are of the slightest avail.

STRAIN OF THE FLEXOR TENDONS.

Cause.—Hard work on uneven ground, or the rider punishing a horse with the snaffle and the spurs.

Symptoms.—The animal goes oddly, not lame. The defective action will disappear upon rest, but stiffness is aggravated by subsequent labor. Any attempt to work the horse sound induces incurable lameness or contraction of the tendons.

Treatment.—Allow several hours to elapse before any attempt is made to discover the disease. A small swelling, hot, soft, and sensitive, may then appear. Bind round it a linen bandage, and keep it wet with cold water. Have men to sit up bathing this for the three first nights; afterward apply moisture only by day. Throw up the horse. Give four drachms of aloes. Do not turn out, but allow two feeds of corn each day. Keep in a stall, and do not put to work till more than recovered.

STRANGLES.

Cause.—Something requiring to be cast from the system, so as to suit the young body to a sudden change.

Symptoms.—A slight general disturbance, which, however, remains. The colt continues sickly. After a day or two, the neck becomes stiff, and a swelling appears between the jaws. The enlargement at first is hard, hot, and tender. A discharge from the nose comes on. The symptoms increase; the throat becomes sore. Breathing is oppressed; coat stares; appetite is lost; tumor softens, and, being opened, the animal speedily recovers.

Treatment.—Neither purge nor bleed. Give all the nourishment that can be swallowed. If all food is rejected, whiten the water, and a little cut grass may tempt the colt. Corn, ground and scalded, may be offered, a little at a time from the hand. No grooming; light clothing; ample bed; door and window of loose box should be open. Gently stimulate the throat with the following: Spirits of turpentine, two parts; laudanum, one part; spirits of camphor, one part. Apply with a paste-brush morning, noon, and night, until the throat is sore. After every application, take three pieces of flannel, place these over the part, and bind on with an eight-tailed bandage. So soon as the tumor points, apply the twitch, and have one fore leg held up. Then open the swelling with an abscess knife. It may be necessary to make another incision. There are other occasional varieties of strangles, for which consult the substance of the work, pages 272, 273.

STRINGHALT.

Cause.—Over-exertion.

Symptom.—Raising both hind legs, one after the other, previous to starting.

Treatment.—None is possible.

SURFEIT.

Cause.—Heat of body.

Symptom.—An eruption of round, blunt, and numerous spots.

Treatment.—If the pulse is not affected, the symptom may disappear in a few hours. Look to the food. Abstract eight pounds of hay, and allow two bundles of cut grass per day. Even increase the oats, but with each feed give a handful of old crushed beans. The following drink will be of service: Liquor arsenicalis, one ounce; tincture of muriate of iron, one ounce and a half; water, one quart. Mix. Give daily, one pint for a dose.

Symptom.—If a young horse has been neglected through the winter, the surfeit lumps do not disappear. An exudation escapes; the constitution is involved, and the disease is apt to settle upon the lungs.

Treatment.—Do not take out. Keep the stable aired, and attend to cleanliness. Feed as previously directed, and allow bran mashes when the bowels are constipated. Administer the drink recommended above, night and morning. Clothe warmly; remove from a stall to a loose box. Should the pulse suddenly sink, allow two pots of stout each day. If the appetite fail, give gruel instead of water, and present a few cut carrots from the hand. The shortest of these cases occupy a fortnight.

SWOLLEN LEGS.

Cause.—Debility.

Treatment.—Place in a loose box. No hay for some weeks. Damp the corn, and sprinkle a handful of ground oak-bark on each feed. Attend to exercise. If the legs continue to enlarge, hand-rub them well and long.

TEETH.

Cause.—A thickening of the membrane sometimes conceals the upper tushes and provokes constitutional symptoms.

Treatment.—Lance the membrane.

Symptoms of Toothache.—Head carried on one side, or pressed

against the wall; saliva dribbles from the lips; quidding or partial mastication of the food, and allowing the morsel to fall from the mouth. Appetite capricious; sometimes spirit is displayed—then the horse is equally dejected. The tooth dies; the opposing tooth grows long. The opposite teeth become very sharp, from the horse masticating only on one side. The long tooth presses upon the gum and provokes nasal gleet.

Treatment.—Chisel off projecting tooth; file down the sharp edges of the opposite teeth, and look to the mouth frequently.

TETANUS.

Causes.—Cold rain; draughts of air; too much light; wounds.

Symptoms.—The wound often dries up. The horse grows fidgety. Upon lifting up the head, "the haw" projects over the eye. The tail is raised; the ears are pricked; the head is elevated; the limbs are stiff; the body feels hard. Any excitement may call up a fearful spasm.

Treatment.—Give a double dose of purgative medicine. Place in solitude and in quiet. Put a pailful of gruel and a thin mash within easy reach of the head. Let nobody excepting the favorite groom approach the place; and allow him to enter it only once a day.

THOROUGH-PIN.

Cause.—Excessive labor.

Symptom.—A round tumor going right through the leg, and appearing anterior to the point of the hock. It is nearly always connected with bog spavin.

Treatment.—Never attack thorough-pin and bog spavin at the same time. Relieve the thorough-pin first by means of rags, cork, and an India-rubber bandage, cut so as not to press on the bog spavin. If the corks occasion constitutional symptoms, use a truss to press upon the thorough-pin, which, being destroyed, apply a perfect bandage and wetted cloths to the bog spavin. When attempting to cure bog spavin, however, continue the remedy to the thorough-pin, or the cure of one affection may reproduce the other.

THRUSH.

Cause.—Standing in filth, when it appears in the hind feet; navicular disease, when seen in contracted feet.

Symptoms.—A foul discharge running from the cleft of the frog

This decomposes the horn. The surface of the frog becomes ragged, and the interior converted into a white powder. The affection does not generally lame; but should the horse tread on a rolling stone, it may fall as though it were shot.

Treatment.—Pare away the frog till only sound horn remains, or until the flesh is exposed. Then tack on the shoe and return to a clean stall. Apply the chloride of zinc lotion—three grains to the ounce of water—to the cleft of the frog by means of some tow, wrapped round a small bit of stick. When the stench has ceased, a little liquor of lead will perfect the cure. For contracted feet pare the frog, and every morning dress once with the chloride of zinc lotion; but do not strive to stop the thrush.

TREAD.

Cause.—Fatigue and overweight.

Symptom.—In light horses it occurs toward the end of a long journey. The hind foot is not removed when the fore foot is put to the ground. The end of the fore shoe consequently tears off a portion of the coronet from the hind foot. In cart-horses, after the horse is fatigued, the load has to be taken down a steep hill; the animal, being in the shafts, rocks to and fro; the legs cross, and the calkin of one shoe wounds the coronet of the opposite hoof.

Treatment.—Bathe the sore with the chloride of zinc lotion, one grain to the ounce of water. Continue to do this thrice daily; feed liberally. A slough will take place, and the animal be well in about a month; the only danger being the after-result of a false quarter.

TUMORS.

These are so various and of such different natures, that in every case a surgeon should be consulted.

WARTS.

Cause.—Unknown.

Symptom.—There are three kinds of warts. 1st. Some are contained in a cuticular sac, and, upon this being divided, shell out. 2d. The second are cartilaginous and vascular. These grow to some size, and are rough on the surface. They are apt to ulcerate. 3d. Consists of a cuticular case, inclosing a soft granular substance.

Treatment.—When of the first kind, slit up, and squeeze them out. The second kind, excise and apply a heated iron to stop the bleeding. The third kind are better let alone.

WATER FARCY.

Cause.—Overwork and coarse feed, succeeded by periods of stagnation. It is the warning that true farcy threatens the stable.

Symptoms.—Load less and work less.

Treatment.—Improve the diet, and never allow the horse to remain a day in the stable without exercise. Saturate the swollen limb with cold water every morning, and have it afterward thoroughly hand-rubbed until it is perfectly dry. Should lameness remain after the first day, a few punctures may be made into the limb, but only through the skin. Give the following ball every morning: Iodide of iron, one drachm; powdered cantharides, two grains; powdered arsenic, one grain; Cayenne pepper, one scruple; sulphate of iron, one drachm; treacle and linseed meal, a sufficiency. Mix. The delay even of a day in treatment is attended with danger in this disease.

WIND-GALLS.

Cause.—Hard work.

Symptoms.—Small enlargements, generally upon the hind legs and below the hocks; no lameness; two wind-galls appear above the pastern, one beneath that joint; after extraordinary labor, the round swellings disappear and the course of the flexor tendons becomes puffy. Sometimes continued irritation will cause the wind-galls to greatly enlarge, and ultimately provokes their case to change into bone. During these changes the horse is very lame.

Treatment.—Fold pieces of rags; wet them; put these on the wind-galls; place on the rags pieces of cork, and over the cork lace on an India-rubber bandage. Mind this bandage is constantly worn, save when ridden or driven by the proprietor. Rest is the only alleviation for the change of structure.

WINDY COLIC.

Causes.—Gorging on green food; but more commonly impaired digestion, consequent upon severe labor and old age.

Symptoms.—Uneasiness; pendulous head; cessation of feeding. Breathing laborious; fidgets; rocking the body; enlargement of the belly; pawing. Standing in one place; sleepy eye; heavy pulse; flatulence; the abdomen greatly enlarged. Breathing very fast; pulse very feeble; blindness; the animal walks round and round till it falls and dies.

Treatment.—Three balls of sulphuret of ammonia, two drachms, with extract of gentian and powdered quassia, of each a sufficiency, may be given, one every half hour. Next, one ounce of chloride of potash, dissolved in a pint of cold water, and mingled with sulphuric ether, two ounces, should be horned down. In an hour's time, two ounces each of sulphuric ether and of laudanum; half an ounce of camphorated spirits; one drachm of carbonate of ammonia may be administered. No good effect being produced, throw up a tobacco-smoke enema. As a last resort, procure a stick of brimstone and light it. Remain in the stable while it burns, or the sulphureous fumes may become too powerful for life to inhale them. Continue this measure for two hours; then repeat the remedies previously recommended. All being fruitless, a desperate resort may be adopted. Puncture the abdomen with a trocar; but this operation can only be named here; the reader must turn to the substance of the book for its description.

WORMS

Are of four kinds: the Tænia, the Lumbrici, the Strongulus, and the Ascarides.

The *Tænia* mostly affect the young.

Cause.—Starving the mare when with foal, and breeding from old animals.

Symptoms.—Checked development; large head; low crest; long legs, and swollen abdomen. Appetite ravenous; body thin; coat unhealthy; breath fetid. The colt rubs its nose against a wall, or strains it violently upward; picks and bites its own hair.

Treatment.—Give spirits of turpentine. To a foal, two drachms; to a three months' old, half an ounce; six months, one ounce; one year, one ounce and a half; two years, two ounces; three years, three ounces; four years and upwards, four ounces. Procure one pound of quassia chips; pour on them three quarts of boiling water. Cause to blend with the turpentine a proportionate quantity of the quassia infusion, by means of yolks of eggs; add one scruple of powdered camphor, and give first thing in the morning. Good food is essential afterward. Subsequently give every morning, till the coat is glossy, liquor arsenicalis, from one to eight drachms; muriated tincture of iron, from one and a half to twelve drachms; extract of belladonna, from ten grains to two drachms; ale or stout, from half a pint to a quart.

The *Lumbrici* prey upon the old and the weakly.

Treatment.—Tartarized antimony, two drachms; common mass, a sufficiency to make one ball. Give one every morning.

The *Strongulus*, during life, is generally not known to be present.

The *Ascarides* cause great itching posteriorly, which provokes the horse to rub its hair off against the wall.

Treatment.—Try injections of train oil for one week. Then use infusion of catechu, one ounce to one quart of water. On the eighth morning, give aloes, four drachms; calomel, one drachm. Tobacco-smoke enemas are sometimes useful, and the following ointment may be placed up the rectum night and morning: Glycerin, half an ounce; spermaceti, one ounce; melt the spermaceti, and blend; when cold, add strong mercurial ointment, three drachms; powdered camphor, three drachms.

WOUNDS.

A *lacerated wound* is generally accompanied by contusion, but with little hemorrhage. Shock to the system is the worst of its primary effects. The danger springs from collapse. A slough may probably follow. The slough is dangerous in proportion as it is tardy. The horse may bleed to death if the body is much debilitated.

Treatment.—Attend first to the system. Give a drink composed of sulphuric ether and laudanum, of each one ounce; water, half a pint. Repeat the medicine every quarter of an hour if necessary, or till shivering has ceased and the pulse is healthy. A poultice, made of one-fourth brewer's yeast, three-fourths of any coarse meal; or a lotion, consisting of tincture of cantharides, one ounce; chloride of zinc, two drachms; water, three pints, may be employed. When the slough has fallen, apply frequently a solution of chloride of zinc, one grain to the ounce of water; and regulate the food by the pulse.

An *incised wound* produces little shock. The danger is immediate, as the horse may bleed to death.

Treatment.—Do not move the horse. Dash the part with cold water, or direct upon the bleeding surface a current of wind from the bellows. When the bleeding has ceased and the surfaces are sticky, draw the edges together with divided sutures. When the sutures begin to drag, cut them across. After copious suppuration has been established, bathe frequently with the solution of chloride of zinc, one grain to the ounce of water.

An *abraded wound* generally is accompanied by grit or dirt forced into the denuded surface. The pain is so great, the animal may sink from irritation.

Treatment.—Cleanse, by squeezing water from a large sponge above the wound, as was directed for broken knees, and allow suppuration to

remove any grit that is fixed in the flesh. Support the body, and use the chloride of zinc lotion.

A *punctured wound* is dangerous, as the parts injured are liable to motion. On this account those above the stifle are very hazardous. Sinuses form from the torn fascia opposing the exit of the pus; also because the small hole in the skin generally bears no proportion to the internal damage.

Treatment.—Always enlarge the external opening to afford egress to all sloughs and pus. Regulate the food by the symptoms, and use the chloride of zinc lotion.

A *contused wound*, when large, causes more congealed blood than can be absorbed. This corrupts, and a slough must occur or an abscess must form. Either generates weakness, produces irritation, and may lead to fatal hemorrhage. Or sinuses may form. Wherefore, such accidents are not to be judged of hastily.

Treatment.—When the contusion is slight, rub the part with iodide of lead, one drachm of the salt to an ounce of lard. When large, divide the skin, every eighth inch, the entire length of the swelling. Bathe the injury with the chloride of zinc lotion, and support the body, as the symptoms demand liberality in the matter of food.

In all wounds, gain, if possible, a large depending orifice, and cover the denuded surfaces with a rag saturated with oil of, or in solution of, tar.

The author, having now concluded his labors, cannot forbear from repeating the advice which was given to the reader at the commencement of the present Summary—always appeal to the body of the work so soon as the first danger has subsided. Many hints are therein contained which could not be embodied in anything deserving to be entitled an abbreviation. Ampler space there enables the writer to describe certain precautions and to suggest various stratagems which, of course, would be out of place in the pages where condensation was the professed characteristic. For these reasons the reader is most earnestly recommended never to depend longer upon the contents of the Summary, than the pressure of immediate danger shall render imperative.

INDEX.

Abdomen, diseases of, 165.
Abdominal injuries, 184, 467.
ruptured diaphragm, 185.
ruptured spleen, 186.
ruptured stomach, 186.
intro-susception, 187.
invagination, 187.
strangulation, 188.
ruptured intestines, 188.
calculus, 188.
Abraded wounds, 425.
Abscess of the brain, 19, 467.
symptoms of, 20.
Acites, 178, 468.
symptoms of, 178.
treatment of, 179.
Acute dysentery, 172, 468.
cause of, 173.
symptoms of, 173.
treatment of, 174.
Acute gastritis, 147, 469.
causes of, 147.
treatment of, 148.
symptoms of, 149.
Acute laminitis, 367, 469.
cause of, 368.
symptoms of, 369.
treatment for, 370.
Albuminous urine, 218, 470.
All kinds of treatment have been tried for tetanus, 32.
Alphabetical summary, 465.
Alteration in shape consequent upon tetanus, 31.
Aphtha, 73, 470.
treatment of, 73.
Attention to the feeding of horses most important, 20.

Back sinews, clap of, 302, 477.
sprain of, 303, 507.
Bandage for punctured abdomen, 432.
Best treatment for megrims, 26.
Blood spavin, 328, 470.
Bloody urine, 215, 486.
Bog spavin, 318, 470.
Bots, 152, 470.
causes of, 152.
Brain, abscess of, 19.
and nervous systems: their accidents and diseases, 17.
disease of, 17.
Breaking down, 304, 470.
cause of, 304.
treatment for, 305.
Broken knees, 404, 471.
contusion generally accompanies, 405.
cause of, 406.
proper mode to wash, 407.
how to probe, 408.
treatment for, 410.
Broken wind, 254, 472.
cause of, 255.
symptoms of, 256.
treatment for, 257.
Bronchocele, 119, 473.
remedies for, 119.
Bronchitis, 125, 472.
symptoms of, 126.
remedies for, 127.
Bruise of the sole, 353, 473.
Buying a captain, 84.

Calculi, 213, 473.
Canker, 358, 474.
cause of, 359.
symptoms of, 359.
treatment for, 361.
Capped elbow, 324, 474
Capped hock, 321, 474.
Capped knee, 321, 475.
Cartilages, ossified, 366, 495.
Cataract, 54, 475.
kinds of, 54.
preventive for, 54.
no remedy for complete, 56.
use of belladonna in, 56.
no medicine can cure, 57.
Cavities, synovial, open, 412, 494.
Chest, the diseases of, 121.
Choking, 110, 475.

Choking, causes of, 111.
different kinds of, 111.
high, most important, 111.
remedy for, 112.
low, 113.
Chronic dysentery, 175, 476.
cause of, 175.
symptoms of, 176.
treatment of, 177.
Chronic gastritis, 150, 476.
symptoms of, 150.
treatment of, 151.
Chronic hepatitis, 158, 477.
Clap of the back sinews, 302, 477.
Cold, 84, 477.
its causes, 84.
symptoms of, 85.
treatment of, 85.
Colic, windy, 199.
spasmodic, 194, 505.
cause of, 194.
symptoms of, 196.
treatment for, 197.
Congestion in the field, 121, 478.
remedy for, 122.
Congestion in the stable, 123, 478.
remedy for, 125.
Corns, 349, 478.
causes of, 349.
old and new, how to distinguish, 350.
treatment for, 352.
Contused wounds, 427.
Cough, 99, 479.
symptoms of, 99.
treatment for, 100.
medicines for, 101.
Countenance of a horse with hydrophobia, 27.
Cracked heels, 250, 479.
cause of, 250.
symptoms of, 252.
treatment for, 252.
Crib-biting, 162, 480.
symptoms of, 163.
treatment of, 164.
Curb, 306, 480.
cause of, 308.
treatment for, 307.
Curb-chain may injure the jaw, 72.
Cystic calculus, 214.
Cystitis, 209, 480.
causes of, 211.
symptoms of, 210.
treatment for, 210.

Diabetes insipidus, 217, 481.
causes, 217.
treatment for, 217.
Diaphragm, spasm of, 145, 504.
Disease of the heart, 143.
Division of the tendons, 457.
Division of the tendons, the necessity for, how provoked, 458.
how to perform, 459.
after-treatment required for, 460.
Do not whip a runaway horse, 19.
Dropsy of the abdomen, 178.
Dysentery, acute, 172.
chronic, 175.

Enteritis, 165, 481.
causes of, 165.
symptoms of, 167.
mode of making sure that it is present, 169.
treatment of, 170.
Excoriated angles of the mouth, 64, 481.
causes of, 64.
treatment for, 66.
Expression of a horse changed by repeated attacks of megrims, 25.
Exturpation of the eye, 59.
Eye, fungoid tumors in, 57.
Eyes, the diseases of, 42.

Face of a horse with hydrophobia, 27.
False quarter, 345, 482.
cause of, 345.
treatment for, 346.
Farcy, 282, 482.
cause of, 282.
symptoms of, 283.
Feeding a horse with chronic tetanus, 33.
Feet, their diseases, 330.
Fever in the feet, 367.
Filled legs, 239.
Fistulous parotid duct, 394, 482.
its causes, 395.
symptoms of, 396.
treatment for, 397.
Fistulous withers, 391, 483.
its causes, 391.
symptoms of, and treatment for, 392.
Flatulent colic, 199.
Foot, prick of, 354, 498
pumice, 339, 499.
Fret, 194, 505.
Fungoid tumors in the eye, 57, 483.
symptoms of, 57.
horrible alternatives left by, 58.

Gastritis, acute, 147.
chronic, 150.
Glanders, 274, 483.
cause of, 274.
symptoms of, 276.
Gleet, nasal, 91, 491.
Grease, 242, 484.
prevention of, 242.
nature of, 242.
cause of, 244.
symptoms of, 245.

Grease, treatment for, 247.
Gripes, 194, 505.
Gutta serena, 38, 485.
causes of, 38.
symptoms of, 39.
peculiarities of, 40.
effect upon the optic nerve, 40.

Harness horses most subject to megrims, 24.
Hay rack, evils of its general position, 44.
Heart, disease of, 143, 485.
Heels, cracked, 250.
Hematuria, 215, 485.
symptoms of, 215.
treatment for, 216.
Hepatitis, chronic, 158.
causes of, 158.
treatment for, 160.
Hide-bound, 231, 486.
treatment for, 232.
Highblowing, 94, 486.
Horse quickly learns to recognize the voice of its owner, 19.
How to treat a runaway horse, 19.
Hydrophobia, 27, 486.
symptoms of, 27.
treatment for, 28.
Hydrothorax, 139, 486.
symptoms of, 140.
treatment of, 141.

Incised wounds, 424.
Idiopathic tetanus, 29.
causes of, 30.
Impediment in the lachrymal duct, 61, 487.
causes of, 62.
treatment for, 62.
Inflammation of the kidneys, 204, 492.
of the bladder, 209, 480.
of the vein, 398, 496.
Influenza, 181, 487.
probable cause of, 181.
symptoms of, 182.
treatment of, 183.
Injuries, 385.
of the abdomen, 184.
to the jaw, 69, 488.
the snaffle may cause, 70.
but often does produce, 70.
treatment for, 71.
produced by London stables, 35.

Jaw, injuries to the, 69, 488.
Joints, synovial, open, 418, 494.

Kidneys, inflammation of, 204, 492.
Knees, broken, 404.

Lacerated eyelid, 60, 488.
Lacerated eyelid, cause of, 60.
treatment for, 61.
Lacerated tongue, 74, 488.
causes of, 77.
treatment of, 77.
Lacerated wounds, 423.
Lameness, 330.
treatment for, 330.
mode of progression when in different feet, 333.
Laminitis, acute, 367.
subacute, 375, 489.
Lampas, 67.
an imaginary disease, 67.
Larva in the skin, 233, 489.
cause of, 233.
cure for, 234.
Laryngitis, 101, 488.
cause of, 101.
symptoms of, 102.
treatment of, 102.
Lash, effect of on the eye of the horse, 43.
Laying open the sinuses of a quittor, 462.
how to accomplish, 462.
intention of, 463.
Lice, 232, 489.
Limbs, the diseases of, 286.
Liver, the diseases of, 145.
London stables, 35.
Luxation of the patella, 325, 490.

Madness, 27.
Mad staggers, 20.
Mallenders and sallenders, 249, 490.
treatment for, 249.
Mange, 220, 490.
causes of, 221.
symptoms of, 223.
treatment for, 225.
Megrims, 24, 491.
a form of epilepsy, 24.
when the attacks may appear, 24.
symptoms of, 25.
Melanosis, 259, 491.
symptoms of, 259.
treatment for, 260.
Mode of feeding a horse with chronic tetanus, 33.
Mouth, the, its accidents and diseases, 64.
excoriated angles of, 64.
roof of, may be injured by the bit, 71.
the disease of, 64.

Nasal gleet, 91, 491.
its causes, 91.
its treatment, 92.
Nasal polypus, 88, 492.
its nature, 88.
its treatment, 88.
Navicular disease, 377, 492.
seat of, 377.

Navicular disease, causes of, 378.
symptoms of, 379.
treatment for, 382.
Nephritis, 204, 492.
causes of, 205.
symptoms of, 206.
treatment for, 207.
Nervous system, its accidents and its diseases, 17.
Neurotomy, 451.
its results, 451.
manner of performing, 452.
Nostrils, the diseases of, 84.
their accidents and their diseases, 84.

Occult spavin, 308, 493.
cause of, 309.
symptom of, 309.
treatment for, 310.
Open synovial joints, 418, 494.
primary treatment for, 418.
general treatment for, 419.
Open synovial cavities, 412, 494.
cause of, 412.
nature of, 413.
what is generally spoken of as, 415.
treatment for, 415.
Operation of no use in abscess of the brain, 20.
Operations, 434, 495.
aids to fetter the horse for, 440.
Ophthalmia, simple, 42, 503.
specific, 46, 506.
Optic nerve, the effect of gutta serena upon, 41.
Osseous deposits, 286.
Ossified cartilages, 366, 495.
Overreach, 349, 495.
treatment for, 349.

Parotid duct, fistulous, 394
Parrot-mouth, 66, 495.
evils of, 67.
no cure for, 67.
Partial paralysis, 36, 496.
symptom of, 36.
the disease of fast horses, 37.
generally past all cure, 37.
the only hope of remedy for, 37.
Patella, luxation of, 325, 490.
Periosteotomy, 449.
the intention of, 449.
its advantages considered, 450.
Phlebitis, 398, 496.
experiment with regard to, 399.
cause of, 400.
symptoms of, 401.
treatment for, 402.
Phrenitis, 17, 496.
seldom is perceived approaching, 18.
symptoms of its approach, 18.
Phrenitis, remedies for the early symptoms of, 18.
Physic of no use in abscess of the brain, 20.
Pleurisy, 136, 497.
symptoms of, 137.
treatment of, 138.
causes of, 139.
Pneumonia, 130, 497.
doubts concerning, 131.
symptoms of, 131.
treatment of, 132.
Poll evil, 385, 498.
its causes, 386.
symptoms of, 387.
treatment for, 388.
Polypus, nasal, 88, 492.
Prick of the foot, 354, 498.
Profuse staling, 215, 481.
Prurigo, 226, 499.
symptoms of, 226.
treatment of, 227.
Pumice foot, 339, 499.
causes of, 339.
symptoms of, 340.
treatment for, 341.
Punctured wounds, 426.
Purgative and quiet, best remedies for tetanus, 32.
Purpura hemorrhagica, 265, 499.
symptoms of, 265.
treatment for, 266.

Quarter, false, 345.
Quidding, 79.
Quiet and a strong purgative, the best remedies for tetanus, 32.
Quittor, 354, 500.
cause of, 355.
symptoms of, 355.
treatment for, 357.
sinuses of, laying open, 462.

Rack, hay, evil of its general position, 44.
Rheumatism, 312, 500.
cause of, 312.
symptoms of, 312.
treatment for, 313.
Ring-bone, 298, 500.
cause of, 298.
symptoms of, 298.
treatment for, 300.
Ring-worm, 227, 501.
symptoms of, 227.
treatment for, 228.
Roaring, 106, 501.
chronic, is a serious affair, 106.
causes and effects of, 106.
remedy for, 109.

Roof of the mouth may be injured by the bit, 71.
Rupture of œsophagus, 115, 501.
how caused, 116.

Sallenders, 249, 490.
Sandcrack, 342, 502.
causes of, 342.
symptoms of, 342.
treatment for, 343.
Scald mouth, 82, 502.
causes of, 82.
symptoms of, 83.
treatment of, 83.
Seedy toe, 346, 503.
treatment for, 347.
Shying, 42.
Simple ophthalmia, 42, 503.
nature of, 43.
causes, 43.
treatment of, 45.
symptoms of, 45.
Sinuses of a quittor, laying open, 462.
Sitfast, 240, 503.
cause of, 241.
treatment for, 241.
Skin, diseases of, 220.
Sole, bruise of, 353, 498.
Sore throat, 96, 503.
symptoms of, 97.
treatment for, 97.
Spasm of the diaphragm, 145, 504.
symptoms of, 145.
treatment of, 146.
Spasm of the urethra, 212, 504.
causes of, 212.
symptoms of, 212.
treatment for, 213.
Spasmodic colic, 194, 505.
causes of, 194.
symptoms of, 196.
treatment for, 197.
Spavin, 286, 505.
cause of, 287.
symptoms of, 288.
treatment for, 293.
how to examine for, 291.
occult, 308, 493.
Specific diseases, varieties of, 254.
Specific ophthalmia, 46, 506.
eyes supposed most subject to, 47.
small stables the cause of, 47.
symptoms of, 48.
contrasted with simple ophthalmia, 49.
treatment for, 50.
preventive for, 51.
terminations of, 51.
Splint, 294, 506.
cause of, 294.
symptoms of, 296.
Splint, treatment of, 297.
Sprain of the back sinews, 303, 507.
cause of, 303.
treatment for, 304.
Staggers, 20, 507.
treatment for, 22.
origin of, 20.
sleepy, 22.
Strain of the flexor tendon, 300, 508.
Strangles, 267, 508.
cause of, 268.
symptoms of, 268.
treatment for, 269.
a bad kind of, 272.
Stringhalt, 33, 509.
symptom of, 33.
cause of, 35.
Stomach, the, diseases of, 145.
Stricture of œsophagus, 116, 501.
its effects, 117.
Subacute laminitis, 375, 489.
W. Percival's account of, 375.
treatment for, 376.
Summary, alphabetical, 465.
Surfeit, 229, 509.
treatment for, 230.
a severe kind of, 230.
treatment for, 230.
Swollen legs, 239, 509.
symptoms of, 239.
treatment for, 240.
Synovial cavities, open, 412, 494.
joints, open, 418, 494.

Tapping the chest, 141.
Teeth, disease of, 78, 509.
symptoms of their disease, 80.
treatment of, 81.
Tendons, division of, 457.
Tetanus, 28, 510.
Thorough-pin, 319, 510.
Throat, its accidents and diseases, 96.
sore, 96, 503.
the diseases of, 96.
Thrush, 363, 510.
cause of, 363.
treatment for, 364.
Toe, seedy, 346, 503.
Toothache, 80.
Tooth, components of, 79.
Tracheotomy, 443.
how to perform, 445.
Traumatic tetanus, 29.
causes of, 29.
test for, 30.
Tread, 348, 511.
causes of, in light and heavy horses, 348.
treatment for, 348.
True cause of stringhalt, 35.
Tumors, 237, 511.

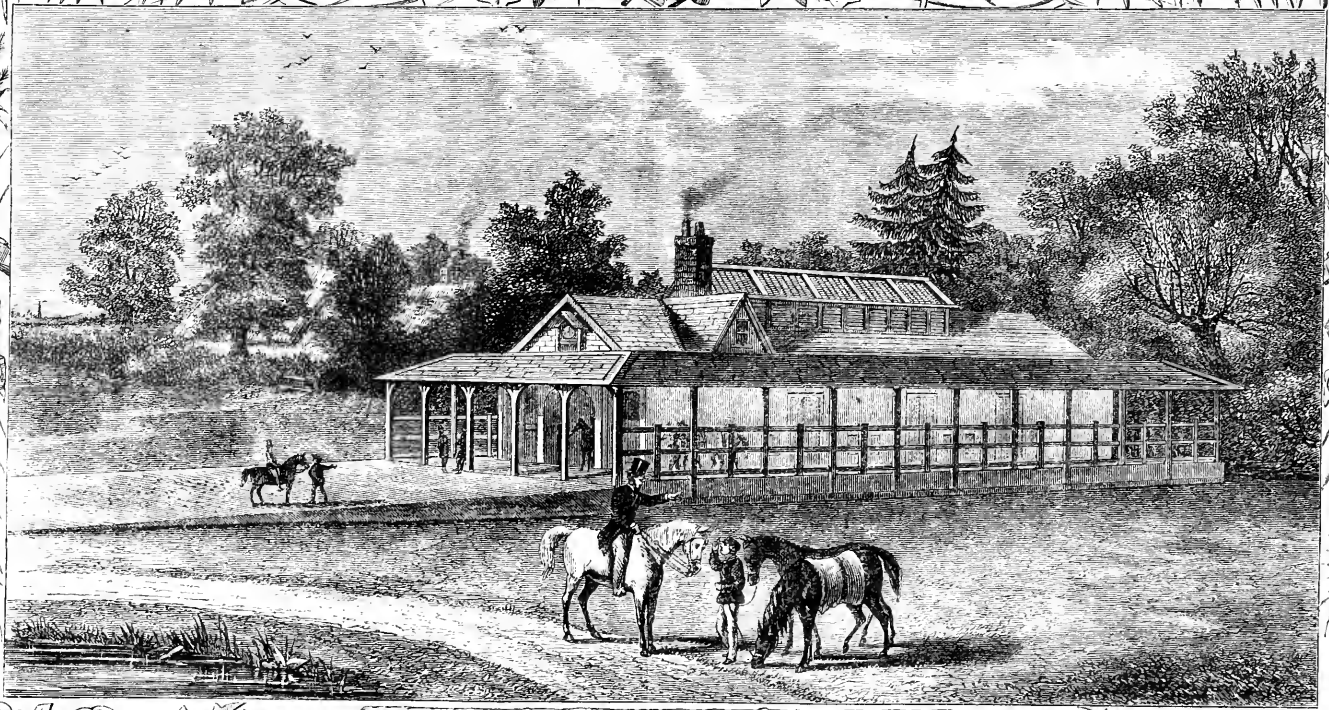
Tumors, natures of, 238.
Tushes, a cause of sickness, 78.
Tympanitis, 199.

Universal spasm is tetanus, 30.
Urethra, spasm of, 504.
Urethral calculus, 215.
Urinary organs, diseases of, 204.

Vein, inflammation of the, 398, 496.

Warts, 235, 511.
  kinds of, 236.
  treatment for, 236.
Water, certain death, after over-gorging, 21.
Water farcy, 262, 512.
  cause of, 262.
  symptoms of, 263.
  treatment for, 264.
Wheezing, 94, 486.
Wind-galls, 315, 512.
Wind-galls, symptoms of, 316.
  treatment for, 317.
Windy colic, 199, 512.
  causes of, 199.
  symptoms of, 200.
  treatment for, 201.
Withers, fistulous, 391.
Worms, 190, 513.
  cause of, 190.
  symptoms of, 191.
  treatment for, 192.
Wounds, 423, 514.
  lacerated, 423.
    their treatment, 427.
  incised, 424.
    their treatment, 428.
  abraded, 425.
    their treatment, 430.
  punctured, 426.
    their treatment, 430.
  contused, 427.
    their treatment, 431.

THE END.



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PREFACE.

THE reader, after having perused the present volume, may imagine the writer should have been more explicit when advertising the book's intentions, that a mass of speculative novelty should not have been hastily intruded upon the general public. Such, probably, will be the primary impression of most purchasers. The author, however, regrets he is by truth obliged to decline the compliment embodied in such a complaint. Those notions which, hurriedly regarded, appear as original, will, to the matured judgment, show only as an obvious result, worked out by the easy application of a single idea. Common sense embraces every merit in the ensuing pages. Grant this, and there remains no loftier claim to advance. The different chapters contain nothing which is not very superficial and entirely based upon fact. Every statement included in the following articles becomes plain and self-evident to the man who can release his mind from the trammels of conventionality, and will allow his conceptions to be shaped by the habits and the inclinations which are natural to the equine species.

No living creature could be more exposed to the willfulness of perversity than the horse has hitherto been. All

around and about the quadruped was moulded by influences which never regard the instincts of the animal. Every incident, directly or remotely concerning its welfare, was misconstrued or misstated. In proof of this is the common belief that Arabia produces the perfection of the tribe. This opinion is not to be substantiated by investigation. It is accepted upon no positive evidence. It is opposed to deductions drawn from a notorious fact. The greater number of Arabian steeds are not much larger than ordinary ponies. The climate dwarfs the stature. Dwindled development is recognized as the established proof of an uncongenial location.

The Arab horse is undoubtedly the most beautiful and the most intelligent specimen of its race. Travelers assure us it lives beside its master. It is the companion of the man and the playmate of the child. The country may not be favorable to its bodily perfection; but the affections and the mental attributes of a dumb intelligence are in that land cultivated and enlarged. Arabia boasts possession of the most civilized race of quadrupeds which are known to mankind. Looking on the creatures of that country, the world can contemplate the money value of kindness, since the indulgence of this emotion can conceal a serious corporal defect!

Probably it may be urged such intimacy between the human being and the beast is compatible only with a wild and a half-savage state of society. But there exist other nations as unrefined; nay, many peoples are known to be more barbarous than are the Arabs. The animal, however, fares as badly with inhabitants of the uncultured as with people of the civilized regions. The absence or

the presence of refinement does not influence the welfare of an equine slave. Then gentleness in the Arabian must be a purely responsive emotion. Its presence or its absence is apart from mental status, or the social distinctions of the population to whom it is subjected and by whom it is surrounded.

The horse, in Britain, generally occupies the same house as the groom; but it is not, therefore, regarded with the feeling which is indulged by the inhabitant of the tent. The change from the soil of its birth to the English stable is attended with a total alteration of circumstances. Coldness or brutality, however, cannot banish the spirit which benevolence had fostered. The rebellion provoked by harshness is only more complete. The quietude of content is replaced by the wildness of timidity. Confidence is destroyed; fear assumes the likeness of savagery. The horse becomes a brute; for ignorance will not believe its inferior can be actuated by a reasonable motive.

In India the cavalry are mounted upon half-bred Persian horses. Not a few of the officers, however, bestride chargers of pure Arabian blood. These last are commonly under the charge of European servants, and serve European masters. The animal's nature changes with its location. The alteration, therefore, is independent of heat or of frost. The Arabs of India are as famed for ferocity as the creatures of the desert are notorious for gentleness of disposition.

The English behavior is chiefly shaped by selfishness, based upon a degraded superstition, which insists that every form of inferior existence was created for man's use and relinquished to his pleasure. The author must leave to others the inquiry, whether Christianity invests those who

profess to believe its doctrines with any power which can be separated from the potency of charity. It is not for him to decide whether the conduct of a half-savage and a pagan tribe should, in its fruits and in its results, shame the consequences produced by the acts of men who boast of education and worship the exemplification of self-sacrifice and of love.

Would man only be content to base observations upon fact, anatomy has for a sufficient period ascertained a circumstance which should have startled public wonder into exclamation. But, where the horse is involved, centuries of prejudice appear to have generated a slothfulness of comprehension which overpowers all ordinary intelligence. In a bird a similar development has for ages been accepted as the proof of peacefulness of disposition. The pigeon congregates in flocks; it lives on vegetable substances, and it possesses a liver which exhibits no gall-bladder. This deficiency and these habits apply to the horse as literally as to the feathered type of innocence. Perhaps the higher status of the quadruped might be urged as the ground of a primary title to human consideration. Yet the dove-cot would seem to have blinded man to the merits of the stable!

The horse possesses a full-sized liver; still the gland exhibits no receptacle in which any excess of biliary secretion may be retained. The testimony of nature associates the creatures which man views as opposites, or regards as the emblem of peace and as the living embodiment of inveterate vice. Sameness and dissimilarity appear oddly united when both lives are viewed as the creations of the Omniscient. Resemblance in body should direct recognition to a likeness

in spirit. Bearing in mind by whose ordinization all facts originate; remembering how life in this world is linked by bonds more difficult to trace than a positive sameness; and admitting that the One Parent had a design in every part of the many forms which He called into existence,—human ignorance must be wrong when it refuses to acknowledge an identity thus plainly emphasized.

That the workings of mortal conception are peculiarly eccentric, or at all events that candid appreciation has not embraced the helpmate of man on earth, is established by every rule of right being perverted when the horse appears upon the scene. The spirit of perversion seems so powerful it involves even the people who act with the animal. When Mr. Rarey came to England, he was hailed as a wonder. Mr. Rarey is now away from these shores, and the persons who formerly acknowledged his genius now speak of the system which he publicly demonstrated, as a flagrant imposture!

Why is this? What causes such contradictory opinions? His present defamers declare Mr. Rarey to be a humbug, because horses, when returned to the former grooms and subjected to the former treatment, resume the former habits. Like causes in other spheres are admitted to produce like results. The animal merely responds to the conduct of those who surround it. Mr. Rarey tames by the exhibition of kindness. He convinces dumb intelligence how futile is resistance, and makes apparent the groundlessness of fear. It is not the spirit which he subdues, but it is the confidence which he gains. All his acts are dictated by a desire to banish distrust. The animal having learned its lesson is restored to its proprietor. But if the owner

has not profited by the instruction which he also has witnessed, ought he to be surprised if his inferior should forget the lesson received?

Is there not something remorselessly evil in thus converting the bad conduct of mankind into a reason for denying the operation of an obvious goodness; in refusing to acknowledge the responsive nature of the companion specially given to soften the doom of the human race; and doing this only to warrant the insolence of severity, which would seem to be a failing inherent in mortal breasts? But the doctrines of love and of charity are, by many worthy individuals, supposed to apply only to the conduct of man to man. There, in general belief, begins and ends the lesson. Even at this late period it is often read but never understood that Universal Benevolence looked down and blessed every form of life which the Spirit had created.

To inculcate the Christian theory; to simply illustrate its wisdom, and to demonstrate the folly of verbally acknowledging its teaching, while the acts of its professed believers do not testify to its truth, has been the endeavor of the author. He imagines that possibly he may convince some reader of the loss which the existing customs entail upon society. He does not anticipate to actuate many purchasers; but should a few carry into practice one or two of his suggestions, and such innovations should upon trial prove successful, other experiments will be hazarded, until all meriting adoption are generally recognized.

But numerous readers, after having read the foregoing, may nevertheless be inclined to inquire, "What is the use of this fuss about morality, when the issue only involves *a horse?*" To this interrogatory the writer unhesitatingly re-

plies, that the first and the most difficult teaching of civilization ever concerns man's behavior to his inferiors. Make humanity gentle or reasonable toward animals, and strife or injustice between human beings would speedily terminate. But instruction to be effective should be convincing: therefore, purposely avoiding sentimentality, the author has sought to enlist the feeling only by satisfying the judgment.

Such are the purposes which induced "Horse Management" to be indited. But high as the object may be, the writer, when submitting his labors to the notice of the public, cannot otherwise than feel there is a common phrase, which passes current for criticism, and to which this book is peculiarly exposed. The colloquialism alluded to is the more insidious because it rather appeals to a prejudice than expresses anything absolute or definite. It rests upon a word in general use among the superficial of every profession, and that word is one which, in the public credulity, exalts the individual who abuses it. Let a medical practitioner study to master the rudiments of his calling, and the purpose of his assiduity will be whispered away by insinuations about the student being a most admirable theorist; but, unhappily, not being "a *practical* man."

Another individual shall earn disgrace at college. Yet this man shall start business to knock about the drugs and hack at living flesh, without comprehending the parts he is interfering with or having any knowledge of the medicines which he ventures to administer. This last person, though he neither adorns nor enlarges the sphere in which he acts, invariably attains the lucrative repute of being "a purely *practical* man." The notoriety brings profit to the object

who merits no reward, while the absence of such fame acutely increases the sufferings of a deserving gentleman who had dared to brave the thorns which proverbially beset the pathway of desert to the recognition of society.

Against the facts declared in the present pages those who are interested to uphold existing foolish and cruel customs will probably urge their "*favorite phrase.*" To conceal its hollowness and to render acceptable its wholesale condemnation, it may be ushered in by an appearance of candor: thus, "Oh! the book is very pretty—nice reading—very humane—a little weak—rather overdone—too philanthropical, and wholly '*unpractical.*' It teaches nothing which experience could adopt or which the thorough horseman can do more than laugh at. *Entirely unpractical.*"

How long are men to be subjugated by mere verbal assertion? All this world has to boast of—all mighty truths, all great inventions—have originally had to *struggle* against this "*practical*" bugbear, which ignorance sets up to frighten its fellows from those doctrines which aim at the amelioration of mankind. Recently it delayed the realization of railways. It has long opposed all social improvement; and as this is written it is being advanced as a barrier to Practical Christianity itself! Those who can regard the instruction of the Creator as too fine for the creature of his creation, may readily condemn all human promptings!

To deprive this phrase of its abuse and destroy its mysterious signification, let the reader quietly ask himself what is really meant by a thing, a book, or a doctrine being "*practical.*" If the word bears any construction, it obviously must imply that which can be used, or a lesson which is capable of being illustrated by performance. The

test of "*practicability*," then, resides in the sincerity of those endeavors which attempt to embody certain instructions. Where no wish to exemplify exists, of course no teaching can be "*practical*." The proof, consequently, generally reposes with the person who advances the accusation, and the accuser is by this prejudice constituted judge of that he has already condemned.

What is there in the present volume or in the "Horse Doctor" which cannot possibly be enacted, supposing an actuating motive to influence the trial? Nothing can be practical if there be wanting the desire to embody particular directions; but to ascertain the value of a current phrase, he to whom it is addressed should ask for the special passage to which this condemnation pointedly alludes. If no specific warrant can be produced, a verdict merely founded upon generalities should never be accepted.

The author, when seeking to accomplish the evident purpose of the volume, deeply regrets those comments which a regard for correctness has compelled him to offer upon the present race of grooms. He can, however, with sincerity deny that the indulgence of dislike, or the gratification of malice, has induced him to travel beyond the limits of his subject. The men in this capacity occupy an unfortunate position. They and their interests range in the foremost rank of existing wrong. It is impossible to amend the regulations of any modern stable without removing some of this calling, or overthrowing some of the abuses, with a perpetuation of which the stable servant and his perquisites are directly involved. An earnest desire for improvement, therefore, compelled the review of that class who, if unassailed, were interested to be the most strenuous advocates

of the bad usages which it was desired should be overthrown.

In conclusion, the getting up of the work bespeaks the care bestowed upon the volume by the publishers, to whom the author offers his most fervent acknowledgments. Nor can the writer bid adieu to his patrons without directing attention to the talent exhibited by the numerous artists and engravers whose labors adorn the pages of the present publication.

Norbury,
Lansdowne Road, Torquay.

CONTENTS.

CHAPTER I.

PAGE

The body of the horse anatomically considered 17

CHAPTER II.

Physic—The mode of administering it, and minor operations . . . 53

CHAPTER III.

Shoeing—Its origin, its uses, and its varieties 95

CHAPTER IV.

The Teeth—Their natural growth, and the abuses to which they are liable. 133

CHAPTER V.

Food—The fittest time for feeding, and the kind of food which the horse naturally consumes 168

CHAPTER VI.

The evils which are occasioned by modern stables 200

CHAPTER VII.

The faults inseparable from most present erections which are used as stables. 233

CHAPTER VIII.

The so-called "incapacitating vices," which are the results of injury or of disease 263

CHAPTER IX.

Stables as they should be 297

CHAPTER X.

Grooms—Their prejudices, their injuries, and their duties 327

CHAPTER XI.

Horse Dealers—Who they are, their mode of dealing, their profits, their morality, and their secrets 357

CHAPTER XII.

Points—Their relative importance, and where to look for their development. 379

CHAPTER XIII.

Breeding—Its inconsistencies and its disappointments 427

CHAPTER XIV.

Breaking and Training—Their errors and their results 449

CHAPTER XV.

Carriages—Their cost, their make, their excellences, and their management. 477

CHAPTER XVI.

Saddlery, Harness, and Stable Sundries—Of what these consist; their application and their preservation 494

INDEX 527

THE

ILLUSTRATED HORSE MANAGEMENT.

CHAPTER I.

THE BODY OF THE HORSE ANATOMICALLY CONSIDERED.

WERE the equine race extinct, nevertheless an anatomist, by studying its bones, might affirm its instincts and assert its uses. Every part declares it to be a creature of speed; while its large cranium and beauti-

STUDENTS DISSECTING AT THE ROYAL VETERINARY COLLEGE, LONDON.

fully-arranged teeth would announce it to have once been connected with civilization by its intelligence, by its uses, and its herbivorous habit. The provision made for the united strength and elasticity of the spine would indicate the care nature had bestowed upon the comfort of a rider; while

the mode in which the members were joined to the body, with the reach of limb peculiar to the skeleton, would equally announce that grace and that ease which had characterized the lost animal's movements.

What lamentation would be poured forth over the absence of such a treasure! How would poignant regrets be awakened, as science demonstrated what once were the endowments of an extinct inhabitant of earth! Yet, at the present time, humanity possesses this priceless creature to lighten toil and heighten pleasure. But, how few of mankind have ever reflected upon the marvelous delicacy of the slave's construction! It is lashed unto exhaustion and worked into deformity. Because of the treatment it experiences at the hands of the master, whom it serves, it generally ceases to exist before its body is matured; but short as its life may be, existence is to it only one continued misery!

Even mortal instruments, things of the world's manufacture, are limited in their applications, and capable of being deranged. A spring carriage is, obviously, not a suitable conveyance for a load of paving stones. He would be esteemed mad, who should appropriate such a vehicle to so gross a purpose. The horse's body is more delicately arranged and more nicely balanced than the perfection of human skill can hope to imitate; nevertheless, people expose themselves to no rebuke when they wrench, cripple, or destroy the beauty which is intrusted to their authority.

Yet, the thing constructed by human hands, if injured, can be repaired, and may be thus rendered again equal to its uses. A living animal, however, being damaged, is not, on this earth, to be restored tc its integrity. That has been, and is lost! Mortal science may relieve the wound, but the scar remains, to conjure up thoughts of that deeper seated derangement, which is beyond the reach of this world's medicine. The body may partially recover and the life may be prolonged; but deformity, accompanied by a proportionate loss of function, will testify to the folly that deteriorated the perfection which was given as a helpmate.

Those forms of agony, which a few years ago were more common in England than such are even at the present time, evidently declared that the horse was altogether unequal to increasing wants and growing desires of mankind. Neither the fleetness of the courser nor the strength of the heavier breed embodied the requirements of the age. Something faster and more powerful had become a public necessity; therefore railroads were permitted.

Such persons as can talk of railroads being destined to destroy the breed of horses, must suffer under a confusion of ideas. The breed of horses may be endangered, as this is being written; but the source of peril lies very far removed from the lines of tramway. The objects,

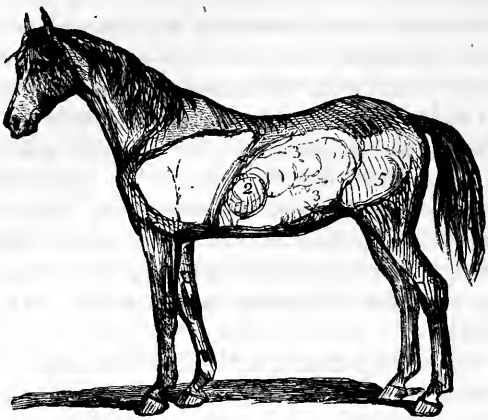
capable of being fulfilled by breathing flesh and by steaming iron, are altogether separate and distinct. No living body can aspire to contend, in strength or in speed, with the results of mechanical contrivance. Neither can the forge or the furnace ever hope to produce any combination of springs and wheels which can compare with the ease of motion, the docility of temper, or the intelligence of spirit that should recommend the quadruped to the kindness of its earthly proprietor.

The horse is the associate of man. It is true, the poor animal can be goaded to excessive labor; but the creature becomes degraded when it toils beyond the sphere of mortal sympathy. No living animal should be subjected to the exactions of avarice. Life was not made to be thus debased. What, however, the horse, when properly treated, is capable of performing, remains to be hereafter demonstrated. How much it can enact, and how greatly it can benefit, when justly treated, the present customs refuse the willing drudge a chance of proving. No steed is now permitted to grow till its thews and muscles are matured. Before the season of its utility can come round, the colt is seized upon by the impatience of gain, and the baby limbs are distorted by that early affliction which forbids the natural powers to be developed.

We can, however, even by the inspection of the body, discover that it is admirably adapted for continuous and prolonged exertion. The maintenance of animal motion chiefly depends on the provision made for aerating the blood. In proportion as the vital current can be revivified or oxygenated is health promoted by those efforts, which in most bodies would, assuredly, induce congestion and death. Age becomes very important when the subject is thus considered. Respiration is in youth quicker than during adultism, because there is so much more oxygen needed when the frame is in a growing state. By working the horse before maturity is attained, the animal is obliged to labor when the ordinary velocity of the respiration permits of the less marginal speed for the breathing apparatus to exert upon extraordinary occasions. Nevertheless, that the reader may judge correctly of the care nature had bestowed upon the formation of a creature destined for subserviency to man, the following engraving is appended.

The accompanying illustration exhibits the lungs as of large proportional dimensions; while the stomach will be recognized as of more than an equally diminished capacity. Everybody must have experienced how greatly respiration is impeded by a loaded digestion; and the Common Benefactor, when creating an animal destined to display speed, seems to have anticipated the probability of such a contingency. The intestines, however, are comparatively of large extent. Into these receptacles the horse's food passes, after having perfected the first process of digestion,

and there it is subsequently mixed with the fluid secretion of the bowels, whereby the nutritive matter is separated and rendered fit for absorption.



THE FIGURE OF A HORSE, PORTRAYING THE COMPARATIVE IMPORTANCE AND THE RELATIVE SITUATIONS OF SOME INTERNAL ORGANS.

1. The lungs. 2. The stomach. 3. The colon. 4. The diaphragm. 5. The situation of the bladder.

The smallness of the horse's stomach is in itself sufficient evidence that the quadruped was designed to be a frequent feeder. It was not intended to endure prolonged abstinence; for almost in every region which the animal may canter over, its legitimate food abounds. Man, however, frequently starves the creature, that a loaded stomach may not interfere with the activity of the respiration; he, in his ignorance and in his presumption, not being willing to trust to such provision as the *All-wise* had made, anticipatory of this accident. At other times, the quadruped is suffered to over-gorge, its keeper paying no regard to its requirements. After an excessive fast, a quantity of cut food is placed in the manger, and the ravenous horse eats, and eats, till its small stomach, being unequal to the reception of much bolted provender, cracks its walls from excessive repletion. Such a circumstance does not demonstrate that nature was wrong, or that the equine races were formed unequal to their purposes; but it satisfactorily establishes that man cannot, with impunity, cross the designs or run counter to the institutions of Omnipotence.

The horse was created to live off the grass of the field. This habit necessitated that much ground should be traveled before the appetite of so large a body could be appeased; and the distance was the greater as the animal was sent upon the earth a nice feeder—biting oft the juicy tops of the herbage, not tearing up roots and all, like the less scrupulous

bovine tribe. The time was also lengthened, by the equine race not being gifted with a power to ruminate. The ox, having filled the mouth, bestows little care upon the comminution of the food; but the jaw being moved twice or thrice, thereby crushing the herbage, so as to form it into a pellet, the mouthful is forwarded at once to the rumen. This receptacle is large, and is somewhat hastily filled. Then the ox retires to a quiet spot and there enjoys its meal; the grass being regurgitated and fully masticated, during which time the animal is said to be "chewing the cud." The horse has no such power. The food it gathers must be prepared by mastication and insalivation before it enters the stomach; consequently, because of the niceness of its appetite, and the absolute necessity for each mouthful being separately comminuted, the horse, in a free state, has to journey far and to feed long before it can lie down and rest.

The equine race were meant to collect their sustenance from the surface of the earth; and, doubtless, the tribe are most at ease when feeding with the head lowered to the necessary position. A dog naturally lowers the mouth when it laps a fluid; but, if this creature be tempted to drink from a saucer held on a level with the ordinary elevation of the head, repeated coughing will interrupt the draught and testify to the inconvenience experienced by the animal. So, in the instance of the horse, we may infer the meal is most relished when the head sinks to its gratification; and, to justify such an inference, anatomy discloses a special provision made to that end. Such a proof is, to the author's mind, of much more weight than any assertion to the contrary of the united British public, as emphasized by the fixed altitude of all the mangers throughout the three kingdoms.

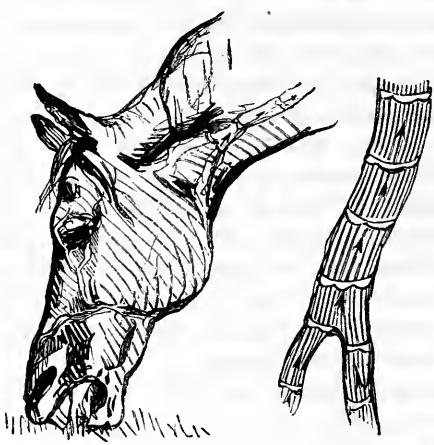
A serious suggestion here forces itself upon the mind of the writer; and it is one the importance of which should recommend it to the consideration of the public. Laryngeal affections are among the most frequent annoyances of every stable, and stand foremost among the most vexatious of the many evils which the veterinary surgeon is expected to eradicate.

However, it is proved that if sustenance be swallowed with the head at a certain elevation, it must interfere with the most irritable organ entering into the composition of the entire body. Then, horse proprietors would do well to reflect upon the fact, and to say, how far constantly-repeated provocation may aggravate or induce the fearful laryngeal maladies to which domesticated horses are peculiarly liable.

The valves existing in the jugular veins are formed by duplicatures of its internal lining membrane; and they are so arranged as to prevent the natural tendency to regurgitate when the fluid within the vessel

moves against gravity. When the head is erect, and the venous current, flowing toward the heart, is of course downward or is favored by gravity, then the valves do not act; but the passage of the blood forces the duplicatures of membrane to remain close against the sides of the tube.

The jugulars conduct the dark-colored blood from the brain; and as that important organ cannot endure the smallest pressure, some special provision was imperative to carry away the fluid, and also to anticipate the possibility of its return to oppress the sensorium. When the horse is grazing, the head is lower than the heart, and it naturally occupies that position for the greater portion of the twenty-four hours. During all that time the venous current must mount against the influence of gravitation; and to aid the reader in properly understanding the means by which this is effected, his attention is invited to the following diagrams.



A SKETCH, DISPLAYING THE ACTION OF THE JUGULAR VALVES WHEN THE HEAD IS LOWERED TO FEED OFF THE GROUND.

The elevated crest, therefore, presents a clear channel to the vital current. For that reason, the violent action or the most rapid pace of the animal never produces congestion of its brain. The racer may sink from exhaustion, but does not perish from apoplexy. The head, when depressed, however, shows the same canal divided by numerous intersecting marks. Such lines are intended to represent the venous valves, which assist the blood in its upward journey, and render impossible the slightest pressure upon the sensorium. The first thing which strikes the reader, upon beholding the arrangement depicted above, is the vast number of valves; and this causes him to inquire, where was the

necessity for such repeated checks. If the conservation of the brain was the only end to be attained, might not that object have been assured by a single set of valves? Such may seem a feasible objection; but to prevent the return current was, as nature appears to have conceived, best done by repeated assistance of the onward flow; consequently, these numerous valves anticipate the possibility of regurgitation in any degree, and provide repeated checks to pressure from the supported column of heavy venous blood.

There remains, however, another provision to be explained. The return current has hitherto been spoken of, as though the upward flow of fluid was its natural tendency. Still, every person must have perceived the necessity, when liquid was to be propelled in that direction, of something resembling a forcing pump. Such an apparatus nature has provided. The head of a healthy animal is depressed only when eating or when drinking. During the performance of either function. muscles are contracting which compress the soft coats of the veins, and thus help to drive the circulation against gravity.

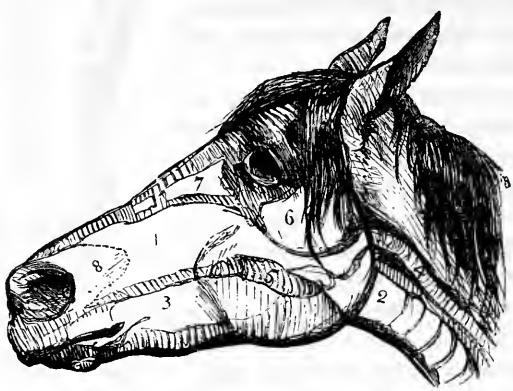
Thus, during feeding, the head is maintained in a depressed attitude for hours together; and, throughout that space, a most powerful agent is in operation. The lower jaw, while the quadruped chances to be thus engaged, is in constant motion, being opened and closed either in biting or in chewing. When the jaw sinks, the muscles of mastication are relaxed, and the venous blood rushes from the cranium into the sinuses. But when the bone is raised by those strong motor agents which render the bite of a horse so fearful an infliction, the current from the brain is for a moment checked, and the contents of the maxillary sinuses are energetically propelled up the jugulars. During the first half of the action, the valves are in operation, having all the strength necessary for the perfect performance of their allotted function; but, during the latter part, they are forced against the sides of the vessels by the contractive masticatory influence, and cease to act in any way upon the internal current of the blood.

Notwithstanding the strong conviction emphatically asserted by the fixed position of the nation's mangers, the author must be obstinate enough to disregard human authority, when he has an opportunity of studying the living book, written by the unerring hand of nature. Valves, though generally present in veins, are never discovered where the position of the vessel or other reason would render such provisions unnecessary. The Great Creator often makes one thing to serve more than one use; but never creates when *His* work can answer no profitable purpose.

The use of veins is simply that of conduits, to convey the refuse

blood back to the heart, whence it is forced into the lungs, and there revivified or rendered equal to its many forms of nutrition. This mighty change is very simply effected. When the thorax expands, air merely enters the lungs to anticipate the vacuum, which otherwise must be occasioned by the enlargement of the chest. The air consists chiefly of two substances in a gaseous state—of oxygen and of nitrogen. The venous blood, being very near to the inhaled air within the lungs, extracts the oxygen from it, and in exchange sends forth a quantity of carbonic acid, which is voided with the expired breath.

This change will take place when blood is extracted from the body. If the contents of some vein are exposed to the atmosphere, they will in time change from a deep modena to a bright scarlet hue. There is,



A DIAGRAM, EXPLANATORY OF THE SPECIAL PROVISIONS DISCOVERABLE IN THE HEAD OF A HORSE.

1. The nostril leading direct to—2. The larynx, situated at the commencement of the windpipe. 3. The tongue. 4. The œsophagus or gullet. 5. The soft palate, which lies upon the tongue and affords a resting-place whereon reposes the epiglottis, or the guardian cartilage to the entrance of the larynx (2). 6. The guttural pouches, or large membranous and open sacs, containing nothing but atmospheric air. 7. Nasal or frontal sinuses.

however, this difference which marks the two processes. The alteration, when quickened by vitality, is instantaneous; but the change, when it ensues under human inspection, is slowly, and, as it were, laboriously accomplished. The size of the equine nostrils informs us of the ample draughts of air which the animal is fitted to appropriate; it likewise testifies to the high state of that vitality which could necessitate such a provision. Creatures with small nostrils, for instance ox and dog, are endowed with a limited capacity as respects nasal respiration. Yet, as a recompense, such creatures are formed to inhale through the mouth. The horse, however, requires no such faculty, its nostrils are ample; and, under ordinary circumstances, the mouth is closed by a

thick, fleshy screen, which hangs pendulous from the most backward portion of the bony palate.

In the previous diagram, figure 1 indicates the space allotted to the nasal chamber, near the external opening to which will be observed the numeral 8. The dotted lines surrounding the last figure represent the dimensions of a blind pouch, or cul-de-sac, which separates the external from the internal wall of the true nostril. The existence of such a provision has long been a puzzle to physiologists; but, would these gentlemen have given *nature* full credit for that care with which the *Common Parent* studies to preserve the beauty of the higher order of *His* children, and have considered that the horse's necessity for different quantities of air varies with different times and during different occupations, they might have sooner comprehended the utility of the development.

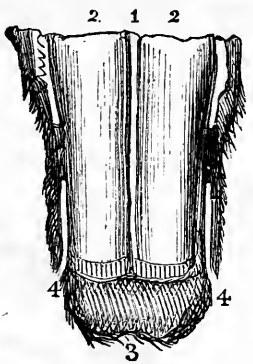


DIAGRAM OF THE FALSE NOSTRILS.

1. The septum nasi. 2. The nasal chambers. 3. The upper lip. 4. The false nostrils.

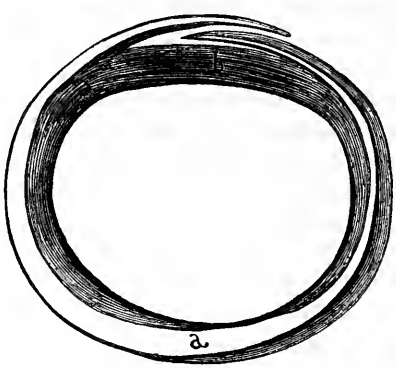
Where the false nostril is placed is the only portion of the nasal chamber which is not inclosed by bone; consequently it is situated at the only place where the cavity admits of distention and of contraction. The animal, in a passive state, breathes very leisurely; at such times the nostrils would sink inward, or be deformed by the unavoidable collapse of the wall, were not the false nostril present to permit its diminution without materially affecting the external form. But subsequent to severe exertion, everybody must have remarked the nostril spasmodically strain, as though each effort would crack the boundaries of the opening. At such times the false nostril offers no stubborn opposition to the violence of respiration, while it serves to soften down the aspect, which, if laid bare, might show too fearfully.

A varied capacity for admitting air also presupposes a varied capacity to alter the dimensions of the passages through which the atmosphere travels to the lungs. If the reader will again refer to the facial diagram, he will perceive a free space, in the center of which is placed the figure 6. These spaces (one on either side of the face) represent what are termed the guttural pouches, they being merely bladders containing air, and communicating separately with each nasal chamber. A bladder with an external opening is of course most readily compressible. That no doubt may be entertained of the use for which these vacant spaces were established, they are placed immediately above the course of the atmosphere to the lungs, and would contract or dilate according to its volume.

Such a condition of parts imagines the windpipe also able to alter its dimensions, so that it may be in accord with other structures; and anatomy discloses facts which amply support such a supposition. The larynx or opening to the windpipe is composed of several pieces of cartilage and of numerous muscles. The presence of the first plastic and highly elastic structure is a proof that the larynx is of no fixed shape, while the division of the organ into distinct parts, together with the internal and external presence of many muscles of motion, is absolute confirmation that the larynx was created not only to assume various forms, but also to exhibit different capacities, according to the requirements of the animal economy.

So also with the windpipe itself, and the tubes which proceed from it; these are formed of distinct rings, or of separate pieces of elastic cartilage so curved as to form rings, but having free overlapping ends, which are operated upon by muscular fiber.

The diagram inserted below accurately represents such a ring; it also shows that the springy cartilage is not made of one thickness throughout, but is of that form which the mechanic of the present time recognizes as that best adapted for the preservation of continued elasticity. The shape and the free ends convinces that such a ring must always have a tendency to expand, and by this perception we recognize the purpose of the muscle, which draws the extremities over each other; thus two opposing forces regulate the capacity of the circle.



ONE OF THE CARTILAGINOUS RINGS, NUMBERS OF WHICH JOINED TOGETHER FORM THE TRACHEA OR THE WINDPIPE OF THE HORSE.

a One of the cartilages from the trachea of a horse, having free and overlapping extremities.
b The muscular fiber situated within the ring, which regulates the diameter of the circle.

The presence of muscular fiber is always absolute proof of motion. Where muscle exists and morbid circumstances render motion an impossibility, the function being destroyed, the motor organ becomes pallid,

or suffers atrophy. The existence, therefore, of such a structure in a healthy condition is always sufficient proof that the function of expansion and of contraction was present during life; thus we reach an absolute certainty that the air-passages of the horse possess a property of adapting themselves to the necessities of the animal.

Then, looking at these structures, we find them not only free, but so composed as to be always open, excepting when the momentary swallowing of the food causes the larynx to close. To breathe is the primary necessity of life. Health cannot be maintained unless the blood is sufficiently oxygenated; this fact makes us doubt the national wisdom, which persists in thrusting the quadruped into stables, rendered close and hot by the products of impurity. Oxygen is always deficient where impurity prevails; and, having seen the necessity of its presence, because it is the primary requirement of existence, and not because of the warmth or oppression which its absence generates, does the author presume to oppose his opinion to the decision apparently approved by the entire British public.

Seeing these provisions made *by nature* to preserve the beauty of her most graceful quadruped, and remarking how profusely, in various forms, loveliness is distributed throughout this earth, we cannot slightingly esteem the attribute which *Perfect Knowledge* has impressed, as an order of merit, upon its creations. Beauty is here spoken of as distinct from gaudiness. The term is employed not to represent the luster of the beetle or the vividness of the tropical bird, but to portray that harmony of parts and deep-seated perfection which is present only in the more elaborate works of the *Creator*, and which renders the horse, even when deprived of its skin, a picture deserving mortal adoration. Viewing the world and its inhabitants, we must confess that nothing was formed without its uses; on such a basis, we may safely assert that the horse was not made the most beautiful of beasts without intention. This quality appeals in a most mysterious and powerful manner to the human sympathies. It should influence the mind even more than it gratifies the eye, and though avarice may blind humanity to its claims, yet even the most hardened cannot witness the destruction of perfection without a poignant pang of regret.

In the head of the animal we discern evidences of the care bestowed to preserve a harmony of form. Above the nasal chambers are certain hollow spaces, indicated by the figure 7. These empty chambers may serve to impart depth to the voice, but as the horse is generally a silent creature, such, obviously, must be only a secondary purpose. To preserve the undulation of the outline was assuredly the primary intent, though at the same time the vacancies aid the reverberation of sound,

and with other structures also lighten that part of the body in which they are situated.

The passage of the air to the lungs, and the admirable provisions to admit its ingress and its egress, without destroying the mild and characteristic aspect of the quadruped, having been described, it now becomes the author's duty to dwell upon the extraordinary conditions which conserve the passages of the food. Referring again to the diagram here

A DIAGRAM, EXPLANATORY OF THE SPECIAL PROVISIONS DISCOVERABLE IN THE HEAD OF A HORSE.

1. The nostril leading direct to—2. The larynx, situated at the commencement of the windpipe. 3. The tongue. 4. The œsophagus or gullet. 5. The soft palate, which lies upon the tongue and affords a resting-place, whereon reposes the epiglottis, or the guardian cartilage to the entrance of the larynx (2). 6. The guttural pouches, or large membranous and open sacs, containing nothing but atmospheric air. 7. Nasal or frontal sinuses.

reproduced, we see the mouth, occupied by the tongue, (figure 3,) on the base of which organ reposes a dark body, particularized by the figure 5. This last is the soft palate, which drops pendulous from the osseous roof of the masticatory orifice. Upon the soft palate lies the most forward of the laryngeal cartilages, which is anatomically spoken of as the epiglottis; while the most backward of the laryngeal cartilages, which are called the aretenoids, repose beneath the roof of the pharynx. This pharynx is the enlarged and muscular commencement of the gullet, the situation and direction of which channel is notified by the number 4.

We thus perceive in its course the food is apparently thrice forbidden to enter the gullet of the horse. In the first place, there is the soft palate, retained firmly in its position by pressure of the epiglottis. The second obstacle we recognize in the opening of the larynx; the third impediment appears in the aretenoids, that seem to bar all entrance to the tube which leads to the stomach. Moreover, the gullet itself being a muscular organ, in the passive state of semi-contraction is closed; thus appearing to oppose a further hinderance to the admission of sus-

tenance into its proper receptacle. However, upon inquiry, the reader will discover these provisions, which appear at first glance to be ranged against the entrance of nutriment, are in reality only so many elaborate protections, all tending to the comfort and well-being of the animal.

The soft palate so effectually closes the posterior of the mouth as to prevent that cavity from being employed to modulate the voice, though such a peculiarity does not distinguish all the equine tribe. Everybody must have remarked the bray distend the jaws of an ass, whereas the neigh flutters only the nostril of the horse, the different channels through which the sound has to emerge fully accounting for the marked contrast which is conspicuous in the voices of the animals. Moreover, the horse does occasionally vomit; but, save when the organization is disturbed by the agonies of death, the voided matter is generally ejected through the nostrils.

However, the reader will perhaps best understand how the apparently closed cavity is rendered subservient to its uses by the process of deglutition being described. A portion of food is bitten off by the incisors; the substance is, by the action of the tongue, next passed to the molars, or is placed between the grinding teeth. There it is thoroughly comminuted. While this is being performed, the saliva is secreted and mingled with the mass, so as to render it quite soft or pultaceous. In this state it is formed into a pellet, and is then pressed by the tongue against the palate or roof of the mouth. The morsel, being now round and soft, is afterward, by a more energetic contraction of the tongue, driven against the pendulous palate, which seemingly closes the posterior of the orifice.

The last organ lies in that direction which enables it to offer a formidable resistance, especially when supported by the base of the tongue, to any substance proceeding *from* the stomach. In the contrary direction it is only held down by the epiglottis; that comparatively feeble body is forced to yield before the greater contractile power of the lingual organ. The epiglottis flies forward, covering the opening to the larynx, in which position the posterior cartilages or the aretenoids also fold over the more forward protector. A secure floor is thus formed, preventing anything from falling into the windpipe, where intrusion of the smallest substance would provoke the most alarming spasm; while a roof to the passage is also made by the raised, soft palate, whereby the nasal chambers are protected from the encroachment of undigested matters.

A safe way being thus provided, the pellet is shot into the pharynx, which, independently of the will, immediately contracts upon any substance coming within its reach, and drives the morsel into the œsophagus or gullet. The tube, surprised by the presence of the morsel, is obliged

to separate for its reception; but it immediately closes on the stranger, thereby driving it lower down, when, the contractility of the fiber being again aroused, it is once more driven onward, and this action is continued until the food is safely lodged within the walls of the stomach.

Few persons can comprehend the above explanation without being forcibly impressed by the beauty and the nicety of the whole arrangement. The elevation of the soft palate closes the nostrils, and at the same time provides a floor for the gaping passage to the lungs. The motion of the soft palate nudges the epiglottis, which lies upon it and causes that cartilage to bend over the opening to the larynx. The bowing down of the epiglottis induces the aretenoids also to stoop, thus forming a safe floor to the necessitated passage. Across the chasm, now rendered secure, the food is shot into the pharynx and conveyed to the stomach, the whole process being accomplished in an instant, for the act of swallowing provokes no sensible impediment to the continuance of respiration.

These things, however instructive or amusing they may be when related, nevertheless are too little thought of; nor is the horse itself sufficiently considered. Were the lessons, which its body should teach mankind, properly understood, those abuses, that are at present limited to no class, would instantaneously cease to be practiced. Most people of this country, however, treat the horse as though it were an original inhabitant of the English climate. Rich and poor in this respect are equally faulty, save that those are most to blame who, possessing wealth, can command the leisure requisite for inquiry, and, being blessed with ability to gratify their inclinations, have no excuse for lack of sympathy in the pressure of necessity. The great error, however, consists in a national carelessness about the matter. The slave is accepted as a property; its life is wasted; its body is abused; man sleeps happy in the belief that animals were created for his use. To render them subservient to his pleasure is the amount of all that he conceives to be his duty. The winter's straw yard and the autumn's run are both follies—sadly common, but nevertheless deserving the condemnation of all good or thoughtful men.

The animal carries about its person the signs which testify it once roamed within a warmer climate than our northern region. The certificate of its origin is legibly written in the eye of the quadruped. This organ mutely attests, that the temperate zone was not the birthplace of its progenitors. It has long been a captive in Britain; but the proof of its proper dwelling-place no time can obliterate. The eye of the horse, like that of the camel, displays a special provision, fitting the creature to endure the strongest glare of a tropical sun, even when reflected from a

level waste of shining sand; or, in other words, the first parents of the tribe must have careered across some burning desert.

THE PUPIL OF THE HORSE'S EYE IN THE OPPOSITE STATES OF CONTRACTION AND DILATATION, SHOWING THE SITUATION AND THE USE OF THE CORPORA NIGRA.

The corpora nigra, in the eye of the camel, are black bodies, pendent from the margin of the iris. The purpose of so special a provision is not apparent, when darkness occasions the opening to dilate; but when the glare is powerful—so powerful as to induce blindness even in the natives of those lands where a concentrated light is possible—then the intent of its Beneficent Creator becomes apparent.

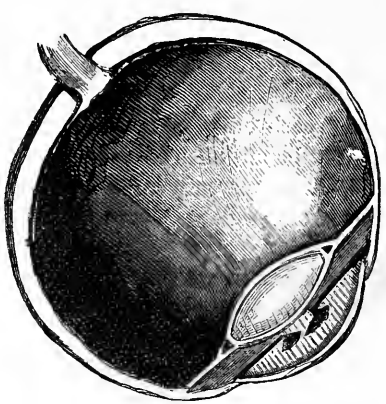
The pupil of the horse's eye is never circular, being, when much dilated, rather oblong in figure; but, when exposed to the direct rays of the summer's sun, the opening energetically contracts. Then the pupil is best represented by a mere line; for the edges of the iris at such a season seemingly touch each other. In this condition, the uses of the corpora nigra can hardly be mistaken: the little black bodies appear to fit into one another, forming apparently an impenetrable network opposed to the entrance of too strong a glare.

Let the author and the reader, however, temperately consider this matter. The pupil in the eye of the horse is not more distant than two inches from the origin of the optic nerve. When the division to be seen through is so close, and the object to be viewed is exhibited under the strongest natural light, the merest crevice will be equal to all the purposes of perfect vision. The full glare of the sun alone occasioning the horse's pupil to contract, that which causes the opening to almost shut also provides the excess of light, which alone could render useful that narrow division through which objects must be recognized; while the dark bodies, being stationed before the point of sight, answer the purpose of the smoke which lads load upon glass when they are ambitious of gazing at the sun.

The reader must have remarked the pupillary line through which the domestic cat exercises perfect vision during the bright noon of a midsummer day. The eye of the feline race is, however, possessed of no other protection. The contraction may be the effect of weakness of

sight; at all events, the author thinks he may conclude the far-famed eye of the cat to be inferior to that of a horse. The domestic mouser is popularly said to see in the dark; the steed has been long known to penetrate the gloom which sets the strained vision of its master at defiance; but it remains to be granted that both horse and cat are equally fitted to roam by night. The habits of the herbivorous creature would, however, assert it to be possessed of such a faculty; and the anatomist discovers in the visual organ of the animal a provision specially adapting it for these peregrinations.

Upon the upper and forward surface of the inner, dark chamber, and so placed as to catch, to concentrate, and to reflect every stray ray of light upon the optic nerve, the tapidum lucidum is discovered within the globe of the horse's eye. This structure is, after death, very bright or of metallic luster, and, because of its concave form, is admirably adapted to its particular function. That no doubt may remain as to the design of such a provision, the tapidum lucidum is found only within the eyes of those quadrupeds created to roam by night. It is altogether absent in such animals as were destined to move about during daylight.



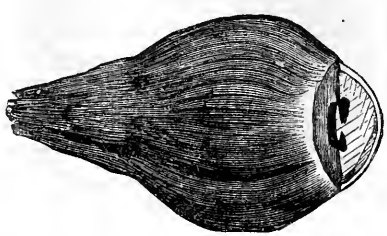
DIAGRAM, EXPOSING THE INTERIOR OF THE HORSE'S EYE, AND DISPLAYING THE SITUATION OF THE TAPIDUM LUCIDUM, OR GLOSSY SURFACE DEVELOPED WITHIN THE ORGAN.

The tapidum lucidum, therefore, viewed in conjunction with the corpora nigra, becomes an inferential proof that the horse originally inhabited some land in which the coolness of the night offered the greatest temptation for pleasant pasturage. The *Mighty Benefactor*, consequently, formed *His* creature to enjoy the bounties among which it was permitted to roam. We know the cat was imported from the tropics; and, seeing that the eyes of both animals, in one marked particular, resemble each other, we may conjecture the horse originally inhabited a

warmer climate; while the likeness between the equine race and "the ship of the desert" demonstrates that that locality was the hottest portion of the earth.

The eye of the horse is also provided with a power which could seldom be needed in these Northern climes, where the fleetness of the equine tribe might readily set at defiance the comparative feebleness of all the predatory beasts of prey. Besides, the wooded state of this country must have rendered the presence of telescopic vision unnecessary. Upon the far-stretching level of the desert, however, where larger and more ferocious animals prowl by night, the possession of such a faculty would be a needed protection. Accordingly, we find the interior of the globe to consist chiefly of water, the outward covering being formed of a tough substance, which is easily compressible; while all the hidden portion of the exterior is enveloped by muscular fiber.

Situated directly upon the forward portion of the ball are the two oblique muscles. These are inserted at opposite places, and each pulls in a contrary direction to the other. The two, simultaneously acting, could not move the organ, but would, obviously, tend to fix it or to render the globe stationary. The outer substance of the horse's eyes is composed of a thick and pliable covering, purely tendinous in character. The interior consists of fluid perfectly pure and transparent. At the back of all is placed the optic nerve; while the exterior is enveloped by several thick and straight muscles.



DIAGRAM, DISPLAYING THE COATING OF MUSCULAR FIBER WHICH COVERS THE SOFT GLOBE OF THE HORSE'S EYE.

The motor agents are endowed with an ability to contract or to shorten in their reach. When parts of this nature operate upon a plastic substance, which is filled only with a fluid, they must of necessity tend to alter the shape of that body on which they repose. The oblique muscles act to prevent rotation; the pressure, therefore, can only compress, elongate, and force backward the ball of the eye. By such a capacity that telescopic property is produced which man feebly imitates by a complex and costly machine.

Anatomy also discovers another important function proper to the eye of the horse, which equally indicates a sandy plain to have been the original habitat of the tribe.

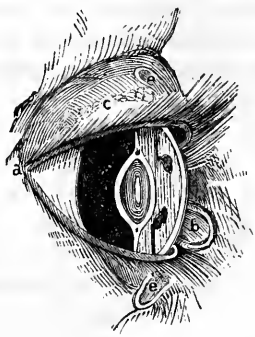
The soft sand of the Southern region would form a soil over which the equine foot could safely travel. The horn, in an unprotected state, was created to journey over so yielding and so dry a surface. Harder ground is poorly suited to the tread of the animal, a fact well established by the brittle hoof being among the recognized diseases of this country; while a wet soil is by no means advantageous, which circumstance is amply illustrated by the weak horn characteristic of those animals reared on the fens of Lincolnshire. The level of the desert presented that combination of qualities which could render the exhibition of its speed a delight to the unbroken quadruped; while the warmth of the climate would afford the medium in which a lustrous coat testifies to the health of a beautiful body.

In opposition to the above inference is the recorded fact that, when English horses were transported as cavalry into Egypt, the dryness of the climate frequently caused the hoofs so to crack as to render the animals totally useless. This circumstance, when first learned, appears to weigh heavily against the conclusion toward which the author's arguments were tending. In reality, however, it establishes nothing; it fades before rational investigation. A life, after having left its native country, does not necessarily thrive when it revisits the land of its origin. Englishmen, who have spent their youth in India, generally return to the variableness and to the humidity of this climate, and complain of the country which, when it was quitted, appeared to be cursed with no evil properties. Negroes captured by British cruisers, and set free on the far-famed colony of emancipation, are ascertained to perish the more rapidly on their return to Africa. These poor people are said to sink more speedily than even Europeans succumb before the clime of flame.

The speed of the horse would enable the quadruped to travel with comparative ease between those remote spots of verdure which lie scattered throughout the desert. The distance which divides these luxuriant localities could present no insurmountable obstacle to the unburdened steed, since the domesticated animal has carried its rider more than one hundred miles. The horse can endure long fasts, and even sustain severe thirst—the colon being a portion of the bowel generally devoted to the store of liquid nutriment; but the distance must have been accomplished in a cloud of sand sufficiently dense to blind the creature which traveled in the center of a moving herd.

The eye of the horse, however, is by nature provided with a protec-

tion against so terrible an affliction, which would expose any wild animal to a fearful death. The outer membrane of the eye is almost limited to covering the more forward or transparent surface, being thence reflected upon the interior of the eyelids. This membrane, when in a single layer, is incapable of communicating to the sensorium more than a feeling of uneasiness. When single, it may be touched, burnt, and cut, without producing actual pain; but the unpleasant sensation provokes a desire to wink, and the instant the lid descends upon the globe, or from the moment when two surfaces of the membrane are in apposition, agony ensues.



DIAGRAM, EXPLANATORY OF THE SITUATION OF THE LACHRYMAL GLAND, OR THE SOURCE OF TEARS, AND OF OTHER PARTS PROPER TO THE HORSE'S EYE.

a. The outer angle. *b.* The puncta lachrymalis, or round body, situated at the inner angle of the eye. *c.* The lachrymal gland, covered by the upper lid and placed near the outer angle of the eye. *e e.* The position, extent, and doubling of the conjunctiva, or of the investing mucous membrane, which envelops the outer portion of the globe and lines the lids.

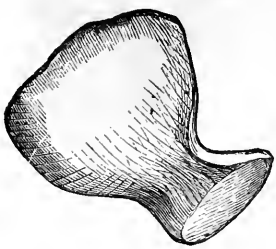
The membrane now under consideration renders it an impossibility for any substance to get "into the eye;" the pain present, when such an assertion is commonly made, gives the strongest proof that the foreign body is retained between two surfaces of that delicate structure which is called conjunctiva. Dryness is, however, destructive of the feeling and of the transparency of this membrane. Nature, therefore, has created a special gland for assuring its perpetual moisture. This last body is situated immediately beneath the surface, under the upper lid and toward the outer corner of the eye. It is, on ordinary occasions, stimulated to send forth its secretion by the act of winking; and the outer corner being situated above the inner corner of the horse's eye, the moisture is, by the motion of the lid, instantaneously brushed over the circular globe.

The gland of the horse, however, has a distinct use not shared by any similar provision to be found in the eye of man. In the human being, grief or pain provokes the secretion; these are always accompanied by floods of tears. Some writers assert they have witnessed agony induce tears in the quadruped; but the author has seen fearful operations inflicted on the noble animal—he has heard huge groans testify to the sufferings endured; yet he has never beheld the eye overflow, or seen anything present which approximated to weeping.

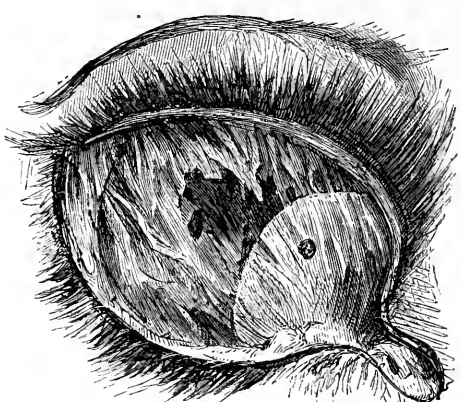
Pain, when occasioned by some foreign body between the two layers of membrane, produces not weeping, but a positive overflow of liquid, the purpose of which will be best explained after the reader has been

made acquainted with a particular organ situated at the inner angle of the eye.

The lower corner of the organ is characterized by a round body, which, being enveloped in a single layer of membrane, is strictly without sensation. Upon this body the grime of the human eye accumulates, and we shall shortly perceive that its presence in the horse is not without a purpose. Next to the foregoing development, and so placed as to accurately fit the globe, is a structure which anatomists name the cartilago nictitans, or the winking cartilage. The more forward portion of this cartilage possesses a fine edge, while its base presents a broad surface, which reposes upon the fat at the back of the orbit. Now, as fat is not compressible by ordinary force, whenever the muscles draw the globe backward, the adipose matter is driven forward; this last carries with it the cartilago nictitans, which is consequently projected suddenly over the surface of the globe. But when the muscles relax, the fat resumes its original place, and with it the cartilage also retires.



THE CARTILAGO NICTITANS, WHEN REMOVED FROM THE EYE OF A HORSE.



DIAGRAM, TO ILLUSTRATE THE ACTION OF THE CARTILAGO NICTITANS UPON THE HORSE'S EYE.

When any foreign body gets between the two layers of membrane, instant winking results; the gland, stimulated by the motion of the lid, sends forth a gush of liquid. It is not simply a tear or two, but a deluge of fluid is emitted; this flood, aided by the action of the lid,

carries the foreign substance in the course of gravity, or from the external toward the internal corner of the globe. While this is taking place, the pain also excites the powerful muscles of the eye to spasmodic activity. With every spasm the fat is displaced, and the cartilage darts from the inner corner partially over the round surface of the eyeball. The process continues until the substance is partly brushed and partly washed to within the range of the fine anterior edge of the cartilage; when, by its withdrawal, the foreign particle is lodged upon the round insensitive body developed at the inner corner of the eye. Toward the last point the tears naturally tend, and any exciting substance, when there placed, is soon floated on to the hair of the cheek.

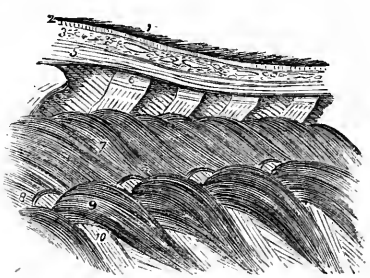
By joining these many proofs, we gain a moral certainty concerning the region whence the horse originated. The eye is seen to be gifted not only with a special provision against the glare of the desert, but it also possesses a peculiar development fitting the animal to enjoy the cool pasturage of the night. The eye is likewise endowed with a telescopic power suited to sweep the far-stretching horizon of the sandy waste. Moreover, the organ discloses a special apparatus evidently designed to overcome those accidents to which inhabitants of arid plains, when rapidly traveling long distances, and in large herds, were exposed.

The reader, perhaps, somewhat wearied by this lengthened description, may, however, be inclined to exclaim, "So that we possess the horse, what care we whence the beast was derived?" There can be no crumb of knowledge so small, but it is worth man's while to stoop and pick up the treasure. Its uses may not be apparent at the time of its discovery, but its application is certain before long to repay the person who prizes it. Taking the instance just narrated about the horse, an assured knowledge of the land whence the beautiful stranger came enables man the better to feel for its requirements; attention to the welfare of its life will be repaid by more lasting service to the master who claims it as a property. By disregarding this teaching, we subject the quadruped to suffering, which cramps the limbs, limits the utility, and shortens the existence, thus stinting the worth and curtailing the lease of the possession.

When writing the foregoing, the author is aware that gentlemen of known probity have reported the existence of herds of wild horses careering free and unbroken over the plains of Asia. Such was formerly said to be the case, and was also credited as an established fact with regard to Southern America. Subsequent inquiry, however, has shown that the wild animals of the pampas are no more than neglected flocks roaming, apparently without an owner, but which, in reality, are allowed thus

to gain a cheap livelihood by a careless proprietor. These American herds are liable to the claim of some man, almost as wild as the animals themselves; so also the reported Asian quadrupeds turn out to be the recognized possession of some wandering Tartar.

However, to leave the consideration of particular parts, and to view the entire body anatomically, the vertebræ or spinal chain, as forming the base of the skeleton, becomes of primary importance. The back-bone of the horse consists of various pieces, so firmly held together by interlacing ligaments and muscles that students, when desirous of dividing the spine of a dead animal, often find it easier to saw the bones asunder than to separate them with the knife. The neck is composed of seven bones; the back is formed by eighteen vertebræ; the loins consist of six pieces, and the sacrum is made up of five distinct parts, although long before adultism all of these last are united by osseous junction.

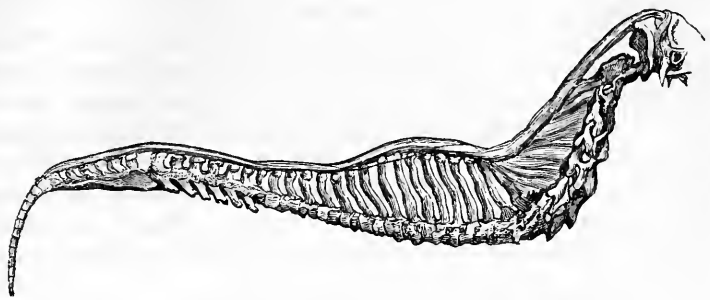


SOME OF THE DEEP-SEATED MUSCLES IMMEDIATELY INVESTING THE SPINE OF THE HORSE.

1. The hair. 2. The skin. 3. The adipose, or fatty tissue directly under the skin. 4. The bursæ mucosæ, or synovial sacks placed above each dorsal spine. 5. The yellow, elastic ligament connecting the dorsal spines together. 6. The spines of the dorsal vertebræ. 7. The semi-spinalis dorsi muscle. 8. The heads of the ribs. 9. The levatores costarum muscle. 10. The ribs.

The sacrum, therefore, is not reckoned among the true vertebræ, the number of which, however, amounts to thirty-two. Of these many divisions, the bones of the neck alone are not subject to deviations. The lumbar may be five or seven, and the dorsal limitation is either one above or one below the usual amount, neither of which varieties are of very rare occurrence. The links of the back-bone differ in form and in function. The dorsal vertebræ seem, at first sight, to possess no lateral processes; whereas in the lumbar region these developments are so extended as to constitute the principal features of the several parts. So also the two first bones of the neck enjoy great motion, and all the links of the neck are very far from stationary. But the parts of the back, on the contrary, are all but fixed; yet, although each is endowed with a

very limited movement, the whole is gifted with an evident elasticity which affords an easy seat to the rider.



THE SPINE OF THE HORSE, OR THE BASIS OF ITS ANATOMICAL FRAMEWORK.

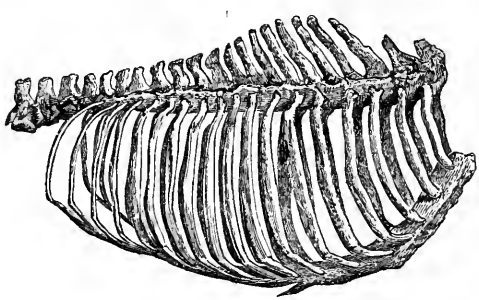
Along the top of the back-bone runs a strong cord of yellow, elastic fiber, which unites the several parts, holding these firmly together as one whole. The elastic cord, however, passes directly from the last dorsal spine, to be fixed into the back portion of the skull, thus skipping over all the bones of the neck. The fibers of this cord are longitudinally arranged; and however elastic such a substance may be, the dorsal arrangement would not allow of that freedom of motion which was requisite in the neck of an animal which was to crop its food from the surface of the earth.

The necessity, however, was fully met by an elastic cloth being, as it were, thrown over the cord, and extending thence to the bones of the neck. By this arrangement, frequent attachments were avoided and grace of outline was preserved, while no deterioration was made in that provision by means of which the heavy head is supported without apparent strain upon the muscular fiber. One end of the elastic expansion being inserted into the cervical bones, all the ease and beauty of movement is rendered possible by the retractile property of the cloth-like ligament being fully equal to the sustenance of the weight, but not strong enough to resist the action of the muscles when excited. Thus, the muscles situated at the base of the neck serve to depress the head; the elastic cloth answers as a counterpoising force, which steadies the movement; the action of the motor agents near the crest, aided by the ligamentous elasticity of the neck, serve to elevate the part, while the muscular power at the base of the bones regulates and guides the upward motion.

But the reader may be desirous to learn how far the back of the animal is suited to endure the weight of the rider. The bones of the spine, not

being joined by osseous union, may give solidity to the part; but it must be self-evident the chain possesses no inherent power to sustain the smallest pressure. Therefore, the body of the rider, when placed upon the back, cannot be upheld by bone alone. The weight must repose upon the muscles and the ligaments by which the solid parts are kept together. Man, therefore, when mounted upon a horse, is seated upon elastic substances, animated by the powers of vitality. This circumstance readily accounts for the pleasurable feelings and the lightness of spirit communicated to the master when within the saddle; although the delicacy of the structures on which the burden is cast should also instruct that an elaborately and a delicately organized body ought to be shielded from labor until age has confirmed and strengthened the several portions of the frame.

When contemplating the uses for which the quadruped was created, we perceive the necessity of that huge mass of muscular fiber with which the back is cushioned. We also recognize the beauty of intention which those numerous supports, called ribs, embody and declare. These props, eighteen on either side, must greatly strengthen the main structure, although each is of a loose texture, and every one is more or less pliable. The innate property of elasticity belonging to the horse's ribs seems to have been long known to country urchins, who, out of these bones, have



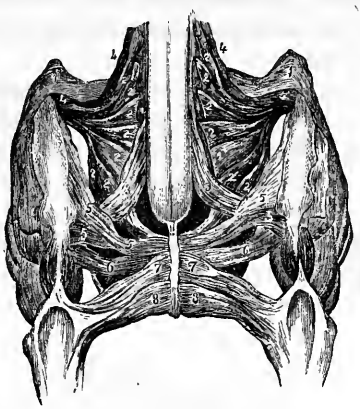
THE THORACIC FRAMEWORK OF THE HORSE.

Showing the manner in which the ribs spring from the spine to unite upon the bone of the breast.

been accustomed to form bows whence to propel juvenile arrows. Nature, however, seems not to have been satisfied with this provision, for the inferior portion of the ribs consists of cartilage, which anatomists speak of as the most elastic substance in the body; this yielding termination rests on the sternum or breast-bone, a structure more than three parts of which are composed of the last-named material.

The manner in which the fore limb is united to the trunk likewise

offers matter for the reader's admiration. Considering that the horse is a beast of burden, man, were he designing a creature fitted for such uses, would assuredly have sought to gain strength by the insertion of bone. Bone, however, would have interfered with that agility which, no less than strength, is an attribute of the horse's body. The presence even of a clavicle joining the shoulder to the thorax would have exposed a jumping quadruped to repeated fractures. Nature, therefore, bound the parts together by interlacing fibers. And to afford an idea of the marvelous care bestowed on this arrangement, the following diagram is submitted to the contemplation of the reader.



SOME OF THE MUSCLES WHICH ATTACH THE FORE LIMB TO THE TRUNK.

Three muscles have already been removed, viz., the panniculus carnosus, the levator humeri, and the latissimus dorsi.

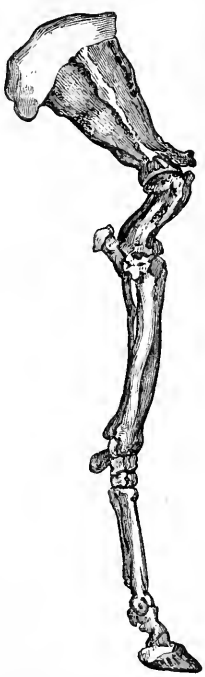
1. The trapezius. 2. The seratus magnus. 3. The subscapulo hyoideus. 4. The rhomboideus. 5. The pectoralis anticus. 6. The anterior portion of the pectoralis magnus. 7. The pectoralis parvus. 8. The pectoralis transversus.

The rider, therefore, when mounted on a horse, is not only seated upon fleshy and ligamentous fiber, and upheld by pliable bone based upon elastic cartilage, but as the thorax is supported by the anterior extremity, he actually swings upon the strongest and most yielding substance known throughout animated nature. Could mortal ingenuity, by the exercise of any force or duration of thought, have perfected so exquisite a work? But the mind is abased and humbled before the proofs of Superior Wisdom, when we find that all hitherto made known is but a part of the lavish provision bestowed upon the perfection of God's most beautiful gift to man.

The bones within the fore limb are not self-sustaining. Remove their coverings, and they will not retain their several places, but will fall in a heap upon the earth. The fact proves that the osseous framework,

although it confers solidity upon the body, is nevertheless upheld by the structures with which it is enveloped. The bony column, however, when united and bound together, exhibits an intention of bestowing elasticity quite as much as of conferring strength. In the first place, the solid column is crowned by a broad but thin plate of cartilage, the yielding property of which has already been dilated upon; so that the trunk not only swings upon living fiber, but the primary weight is endured by what anatomists designate "the most elastic substance in the body," of a shape and form which develops to the uttermost its bending property.

The arrangement of the shoulder-blade and the bone on which it rests being angular, evidently contemplates a yielding to any force coming from above. The two next bones cannot be viewed as meant solely for strength; though the several parts of the knee and shank are slightly columnar in their order, nevertheless the pastern bones again display an intent to yield rather than a design at gaining decided resistance. Yet, even there remains further food for contemplation when viewing these dry bones of a quadruped. The shock, of which the rider complains when doomed to cross the trunk of some poor animal whose body has been disorganized by abuse, is occasioned by the bones having been, through disease, thrown from their natural positions.

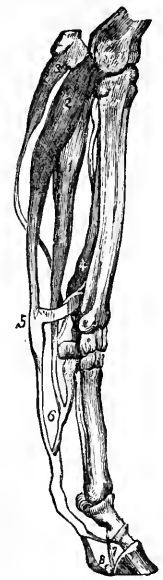


THE BONES OF THE FORE LIMB.

Engineers well know that sand will oppose the force of a cannon ball, the power being rapidly exhausted which has to travel through numerous separated particles. Each grain of sand, therefore, being distinct, a bag of that substance offers a good preventive to the concussion produced by the explosive force of gunpowder. But the reader, when endeavoring to ascertain the provisions instituted by BENEVOLENCE to save the equestrian from concussion, can at once perceive the purpose for which the osseous support of the limb was formed of several pieces, as well as appreciate the beauty and grace of motion which is thereby assured.

Looking at the illustration, we observe that certain of the component solids of the limbs are altogether out of the perpendicular, and consequently must receive other support than is derived from the bone immediately below them. Indeed, no portion of the structure is decidedly columnar in its arrangement. Either the parts are crooked, or they lean

in a direction from the plummet line. The angularity of the two topmost pieces can, however, not possibly escape notice; neither can the slanting position of the pastern bones fail to attract attention. Noting these peculiarities, the reader recognizes that the bones of the fore extremity cannot be self-sustaining, but they must be upheld or retained in their relative situations by the structures which surround them in the living subject.



THE PRINCIPAL FLEXOR TENDONS OF THE FORELEG.

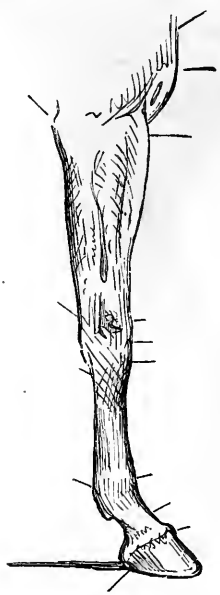
1. The perforans. 2. The perforatus. 3, 4. Accessory muscles. 5, 6. Restraining ligaments. 7. The pedal cartilage divided. 8. The navicular bone.

The scapula and humerus, or the two topmost bones, are rendered firm by the joint action of the powerful extensor and flexor muscles appertaining to the shoulder. The pastern bones transfer their weight to the strong tendon which passes immediately under their lower surfaces. The other bones are held in their situations by the energetic contractility of the muscles which embrace them. Hence it is obvious the rider, when seated on the back of a horse, is not upheld by any osseous resistance. His burden reposes upon living fiber. The bone limits the sphere of contractility, and thus gives firmness to the limbs; but it endures no portion of the weight. So exquisitely has nature adapted her creature to its uses, that in the horse man is provided with a means of conveyance remarkable for fleetness, but more wonderful for the elastic and buoyant seat which an admirable body affords to an ungrateful master.

Had weight been cast upon bone, the shock communicated by placing the foot upon the ground would have been so powerful as must have made the saddle a seat of torture. This is no speculative conjecture, but it is a deduction drawn from positive fact. Hard work causes the pastern bones to quit the slant, which is their natural position, and to assume a more upright direction. They very rarely become actually perpendicular; but as they verge toward that attitude, so as partially to transfer their weight from the tendon to one another, the jar communicated to the rider becomes most distressing. The tendons of the foreleg are, therefore, of all importance; the utility of these structures cannot be better illustrated than by appealing to the terrible effects which ensue upon injury to these organs.

However, that the reader may fully appreciate the simplicity and the seeming complexity developed in the various arrangements exposed upon dissection, the next illustration is inserted, against which numerous lines

are fixed. Those marks indicate the points where a substance, like to white of egg, is interposed between the extremities of the bones. Each separate bone thus not only rests upon a liquid, but the ends of these formations are likewise tipped with cartilage, thus doubly securing the ease of progression. Nor have the perfection of these various arrangements received full justice, for concussion of the foot has not only to travel through different bones tipped by cartilage and separated by the interposition of a fluid, but it also has to progress through the various structures of which the limb itself is composed, and to travel in different directions.



THE ARTIST'S IDEA OF A HORSE'S FORE LIMB.

The lines indicate the places where synovia (or a fluid resembling white of egg) is interposed between the different structures.

So elaborate an arrangement, or one better fitted to answer its intention, no human study could invent. Man has for ages labored to disarrange the parts thus admirably adjusted; when so employed, he has only followed the example of the savage who destroys the product he is incapable of understanding. No injury; no wrong, no cruelty can be conceived which barbarity has not inflicted on the most generous of man's many willing slaves. While this has been going forward, nations, at a vast outlay, have retained expensive establishments to entreat the mercies of a SUPERIOR to be lavished upon themselves, and at the moment these people were boasting aloud of their refined feelings or of their exalted civilization, they have been incapable of sympathizing with the agony which was imprisoned within the walls of their premises.

Looking toward the quarters of the horse, we perceive the spines of the lumbar and sacral bones arranged in so peculiar a manner as to excite remark. Those of the loins bend forward, while those of the haunch incline backward, thus leaving a free space dividing the uppermost bones of two neighboring regions. There must be a reason for so evident a design. Inspecting the last lumbar bone, we ascertain it to be united by its lateral processes, yet it does not touch the first sacral body, all other parts of the chain joining at their centers.

Here is cause for reflection! What takes place at this spot which could render imperative such an arrangement? In what action is the inclination of the trunk so opposite to the position of the quarters as to render imperative such a special provision as is here exemplified in the

skeleton? In prancing, in rearing, and in jumping, the hind legs are firmly planted upon the earth; then, by exertion of the powerful muscles of the quarters, the forward trunk is raised. This action could not have been exhibited had the spines of the sacral bones ranged in the same direction as those of the lumbar vertebræ; and to enforce the reason of this evident provision a free space characterizes this particular joint, others being formed by the interposition of cartilage.

THE BONES OF THE HIND EXTREMITY.

The skeleton of the quarters is characterized by further distinctive peculiarities. The sacral bones are fixed one to another, and joining them at the spine is the huge hip-bone. This is the heaviest of the many weighty pieces which compose the osseous frame of the horse. It is irregular in form, and remarkable for an unusually rugged exterior. An anatomist, by simply inspecting it, could designate its uses, so emphatically is everywhere written the origin and insertion of powerful motor muscles. In every ridge, in every indentation, in every inequality anatomy discovers such a purpose; thus, when "the gnarled and bossy" developments upon this bone are viewed in conjunction with the solid and uneven appearance of the lower osseous supports of the hind limb, no person properly instructed can doubt that the quarters are peculiarly the seat of muscular power in the equine race.

Then the angular arrangement of the bones suggests the immediate purpose of flexion and extension. "Yes," interrupts the reader, "that is true; but supposing the loose bones of the skeleton only to exist, what was to suggest the angularity of arrangement?" Such a fact could be thus readily ascertained. The bodies of other animals would inform the anatomist of the relative situations of the stifle and the elbow joints, while the different lengths and points of bearing in the fore and hind extremities would instruct him concerning all the rest.

But no knowledge could enable the anatomist to infer the gracefulness of form and flow of line which characterizes the body of the horse, even when deprived of its outward investment. Here is a sketch of the quarter after partial dissection. It scarcely awakens the disgust which anatomical labors generally create. The elegance which distinguishes the

living creature is hardly lost—certainly it is not entirely destroyed—and the author is acquainted with no other body which could equally endure so harsh a test.

The inferior bones of the subjoined sketch lead to the foot; but as the osseous structure of this part was illustrated in a previous sketch, and as the fore and hind feet of the horse are in the leading particulars alike, the author will not fill valuable space by unnecessary repetition. However, the hind foot of the horse being the point whence all the strain of propulsion must proceed, the part, from such a cause alone, will be liable to certain distortions. The evils engendered by the cruel impatience of mankind, which forces the colt into too early labor, causes the natural position of the member to become altered. The pastern bones grow to be erect, and, should the toil still be enforced, the shank bone afterward projects. If these warnings are disregarded, inhumanity provokes the heels to be drawn upward, and a valuable helpmate is thus incapacitated from assisting man in his earthly task.

THE HIND QUARTER OF A HORSE, FROM WHICH THE SKIN HAS BEEN REMOVED.

While writing of the horse, it should not be forgotten that in this country there is another animal which properly belongs to the equine race, and which is liable to most of the evils as well as worthy of much of the commendation that has been already pronounced, as though these referred only to one specimen of the tribe. The donkey is much misunderstood. Because its name has become a figure of reproach, no writer hitherto has dilated seriously upon its requirements, although several have been ignorantly sentimental, where suffering needed only truth to plead in its behalf. The animal must have its uses, or its breed would not be preserved.

The fact establishes that the creature is of service to mankind, since the life, whose season of utility has expired, like the dodo, soon ceases to exist. It is, however, chiefly the property of those whose feelings are subject to their necessities. The purchase of such a chattel is comparatively easy; the food is the refuse of the stable; but the work is often disproportionately heavy, for the ass too frequently belongs to those whose daily round of toil would tax the strength of the largest horse.

The prejudice which encircles this miserable being appears to be countenanced even in the dissecting rooms of the veterinary profession. A nat-

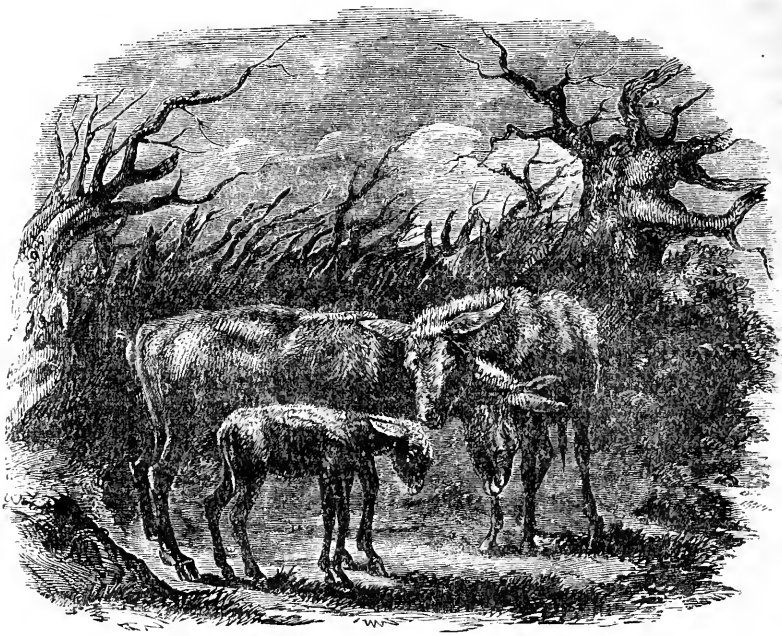
omy is a science the only merit of which depends upon its being a literal record of facts; yet students, at the before-mentioned places, are fond of alluding to the larynx of the ass, as displaying a peculiar development, which accounts for the difference of voice between the last-named animal and the horse. The author could never discover such a curiosity, nor is any necessary, when the peculiarity of the two sounds is attentively noticed. One is a nasal tone, modulated by the flutter of the nostrils; the other is a harsh, grating noise, produced by energetically inhaling and expelling the atmosphere through the extended pipe of the animal's trachea.

The donkey labors, however, beyond the care of its enslaver and without the region of human sympathy. Be its toil exhaustive, let it work without cessation throughout the day and far into the night, no eye regards its fatigue with commiseration. It is an object only to laugh at. The popular belief is, that the tribe is so peculiarly hardy as to be altogether removed from the necessities, the liabilities, or the accidents common to every other form of life. All grades of existence which men please to neglect, they generally designate as "hardy." Human beings, however, notoriously become less "hardy" as knowledge is enlarged and as life becomes better cared for. Will the time ever arrive when perception can embrace that which we now view only as an object of fun, and when the donkey will be regarded as entitled to share the consideration bestowed upon all the other inhabitants of earth?

The country is not secure, the people are not released from barbarism, while the pressure of want can blind the nation to the lawful needs of the lives which surround and which serve it. Civilization must be far from perfected, when an inquiry concerning the man who has beheld a dead donkey can make a large assemblage laugh. The author has, however, known poor families to be plunged into deep distress because the assinine form of existence was *not* immortal. His experience may, probably, be peculiar, but it is opposed to the stale jest of our theaters; for when he was demonstrator at the Royal Veterinary College, he used to dispute with the man who supplied donkeys for the pupils to dissect, whether the institution should or should not bear the loss of such as died before their lives were required by the school. These creatures were bought at Smithfield, and brought to Saint Pancras for animals enjoying health; they were wanted to endure but a few days; yet the author has seen three carcasses anticipate this brief interval of permitted existence.

The author can further testify that, among the scores of carcasses which he has dissected, he never examined the body of a donkey, however young it might have been, that he did not encounter appalling proofs of internal injuries—injuries which had resulted in change of

structure, and which would have consigned the horse to the knacker's yard. Yet the animals thus maimed were working up to the date of purchase; the inability to move was attributed to the obstinacy which is generously supposed to characterize the ill-treated animal, and the blows fell heavier in proportion as its actual condition should have appealed to human forbearance.



STABLED FOR THE NIGHT.

To properly comprehend the sufferings of the quadruped, we must know the country whence it is derived, and be acquainted with the soil it is fitted to inhabit. The wild ass delights in the sandy desert of a tropical region, and for the products of such a locality a taste is, by the English representative, retained. It lives and thrives upon the spontaneous herbage of the arid waste. The heat, under which other forms of life appear to languish, fills the donkey with animation. The comparative size of its intestines fit it to store away that amount of water which in the land of its nativity is proverbially scarce.

The donkey in England is dragged into a wintry climate, rendered more inhospitable by the low temperature which is the most prominent characteristic of the country. In cold and in wet, the native of a tropical soil must lead a miserable existence. In Britain, however, it

breathes and breeds; but it is here on the limits of even its power to endure. In Scotland the tribe is all but unknown. Where it can live, however, no one thinks of its real condition; no mortal is so weak as to waste pity upon its suffering. Its toil is without other limit than the pleasure of its master; when the day's work is done, the nearest lane is the only stable ready to receive it.

The author has often, when passing down some narrow and unfrequented highway, during the early part of December, encountered a miserable group of beings endeavoring to afford each other a little warmth by crowding close together. The weather at this season is piercing cold. The ground is squashy, and moisture loads the atmosphere. The fierce wind bends the bare twigs of the adjacent hedge, and the temperature is of that kind which heralds the Christmas frost. It is not yet so low as to numb sensation; but it leaves the edge of feeling unblunted, that sense may fully appreciate the heavy misery, before whose wildness all nature moans and crouches. In such a place, and at such a season, the author has been made sad by the living anguish which the preceding illustration feebly depicts.

The donkey, in this country, is very unfortunate in the class whom it principally serves. The lower order, though with impulses untainted by politeness, yet, in the struggle for life, have little leisure to quicken their perceptions or to cultivate their feelings. Their own necessities forbid them to be generous, and render somewhat rude their intercourse. They exist not within the amenities, but upon the borders of society; the law, under whose protection the affluent breathe in comfort, is to them a cruel institution, which forces them to endure, which they recognize only as a restraint, and with which they are powerless openly to contend.

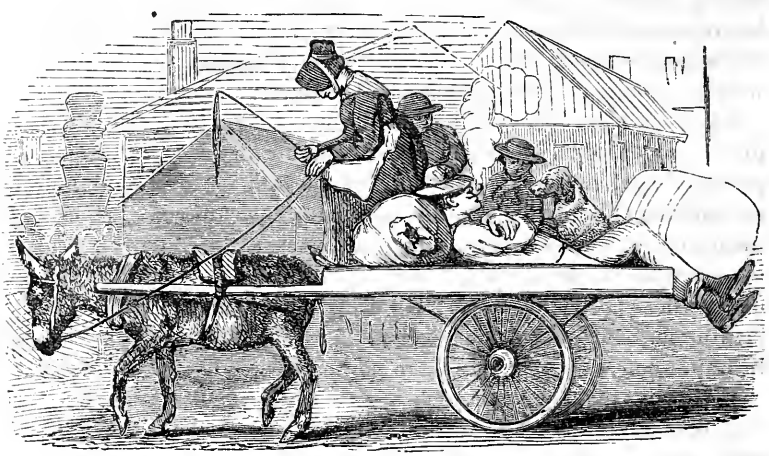
In towns, the homes of such a race are without attractions. The very poor are ignorant of domesticity. They eat and live abroad, and seek their lodgings only when utter weariness makes them heedless where they rest. If the lodging be large enough to conceal, it possesses all the requirements poverty demands. To be larger is to be colder; for the ignorant study rather to drag on existence from day to day than think to promote the health, which is their only real possession.

When such a people rise in their sphere of contention, and can afford to discard the hand-barrow for the donkey-tray, the inferior animal can expect no separate lodging. That will hardly be provided for a beast which the master was too abased to conceive necessary for the members of his family.

The donkey is hailed as a new possession; and for security, not from any loftier consideration, it has to share the proprietor's home. No hole can be too narrow, too dark, or too stifling for the animal's abode,

so that it provides the safe keeping for which it is sought. Humanity shudders as it pictures the strange places which poverty may view as the fitting homes of its dependants!

The young horse may be stinted in its food, but it is spared from work until a certain period has arrived. All classes have their stated ages when the colt should first begin to labor; but the ass has no recognized season of rest, even for its immaturity. It is forced to work so soon as nced can see in the growing body a capacity to assist. Foals are often to be seen dragging loaded trays about the streets of London, and the day's toil is lengthened or shortened by the quickness or the slowness of the day's sale. The food is, during this time, the refuse of the stock; seldom can the owner spare from his earnings that which will purchase fodder for the life which is the partner of his fatigues.



THE DONKEY'S PREPARATION FOR THE LABOR OF THE DAY.

The donkey is harnessed for the early market. The costermonger rides with his family to make his bargains for the day; and the stock-in-trade being procured, he and they ride with it back again. The very poor never walk, save upon necessity, and seem never to conceive their animals can be tired or overladen. The wretched quadruped, on home being reached, is not released and permitted to rest. It has to support the tray while the family wash the stock, display the viands, and get their morning meal; after which it is started with a kick and a blow, and an exclamation of, "Come up, lazy! why, what ails ye, this marning?"

Animals have generally less ability to endure fatigue than have the

numan race; but if the donkey has to work before man's daily round commences, so also do its toils increase after the period of mortal labor has been fulfilled. My readers must recollect to have frequently beheld the coster's tray, now emptied of the green stock of the morning, but occupied by several shouting fellows, and drawn past the windows by a little donkey. The street purveyor of vegetables often travels far to dispose of his wares. But the green stuff distributed, he considers his labors for the day to be ended. He then has time to appreciate his own sensations. He flings his body full length upon the tray, and, with the good nature which belongs to his class, does not refuse a ride to any wayfarer so long as the vehicle can accommodate another passenger. All, then, fully impressed with the popular credulities concerning the donkey, commence shouting and thumping, while the animal, which has been upon its legs before the light began, is forced to travel homeward at a pace which is compelled to be faster in proportion as it may be distant from its lodging.

In the country, the houses being more separated, the animal is deprived of the frequent stoppages and the lighter draught of the towns. The pull is heavier, and the distances are longer; but still the donkey must progress until the master has earned a certain sum, without which he rarely turns the creature's head toward his home. If the proprietors of asses have few faiths, they are all thoroughly imbued with one belief, which is, that the animal in their keeping cannot possibly feel exhaustion. Their credulity does not stay here. They are impressed with a conviction that no creature of the donkey tribe has any sort of feeling. The quadruped, they know, can bear an unusual amount of beating with the thickest possible bludgeon, and simply requires only the coarsest of refuse for sustenance. Moreover, such conviction leaves the proprietor his own convenience to consider, when imposing burdens on "the beast within his gate."

The last article of belief makes the man select the weakest portion of his dumb servant's spine for a seat, when he is inclined to play the jockey. The reader, to whose notice diagrams of the equine spine have been submitted, knows that the loins alone are unsupported by other bones. The absence of that which renders this region the weakest division of the vertebræ, also makes this portion of the quadruped's back the most yielding and elastic. Here the fashion of vulgarity fixes the rider's seat when he strides the ass. The veterinary student will remember that few of the lumbar bones in the carcasses he dissected, when at college, were in their integrity. The author has encountered two, three, and even four bones of the six which compose the part locked together by osseous deposit.

Such a form of union proves the animal to have suffered inflammation. The injury must have been endured and the agony must have run its course; for an osseous junction is positive evidence that all the stages of inflammation have been survived. Few persons, when they behold the young donkey stagger under the weight of its six-foot rider, care to think of this; nay, the writer has beheld really worthy gentlemen stand and enjoy the scene of activity presented at evening time by a rural gipsy's encampment. The women were laughing, the men were shouting, while the more jovial of the gang were racing on the common. Those poor donkeys, which already had been goaded to the performance of no ordinary day's toil, were carrying terrific loads, and beaten till they galloped, despite the deep-seated anguish with which they were afflicted.

CHAPTER II.

PHYSIC, THE MODE OF ADMINISTERING IT, AND MINOR OPERATIONS.

Let the reader ask any gentleman of his acquaintance, "Whether man is not morally answerable for the welfare of those animals which are gathered beneath his roof?" The individual thus appealed to will most probably lean back in his easy chair, and, with a look of amiable surprise, may reply "Certainly! certainly! Assuredly, my dear sir, I regard myself as fully responsible! Every horse in my stable costs me one hundred pounds, or very nearly, a year. The poor animals ought to be well looked after for that money! Clerks—many young city men—receive only fifty pounds annually—from respectable houses too. Therefore, my horses ought to be especially well cared for!"

But to drive this matter home, allow the author, with all humility, to inquire if it be in the power of money to discharge the smallest or the slightest moral bond? Is there no difference between paying and doing? May there not be certain duties which are equally stringent upon the very rich and the very poor? Can the wealthy compound for such obligations, and are the needy, only, to be judged for the non-fulfillment of these responsibilities?

It is among the worst features of modern society that, while it boasts of several worthy gentlemen who can draw largely upon their bankers, there are in its ranks so very few who would willingly submit to the smallest personal exertion for the fulfillment of that which they confess to be a moral duty. Would these most agreeable and amiable individuals occasionally lounge toward the stable, the cost of its maintenance might be decreased, and, nevertheless, the creatures for whose welfare the owner is confessedly responsible be better treated at the diminished outlay.

When a dumb slave fails in the service of some affluent proprietor, all that might be done is not accomplished when an order is hastily given "to call in" a veterinary surgeon. It is not sufficient that baskets of drugs are delivered and paid for; that physicking and bleeding are practiced and remunerated; that a "horse doctor" is constant in his attendance, or that a building, by its odor, attests to the activity of his measures. No. Man is formed capable of investigation, and is blessed with

a power of locomotion. A man is bound to go, to see, to hear patiently, and to judge conscientiously, of that which is done to the lives intrusted to his responsibility. Had this duty been discharged, many processes, still sanctioned by custom, might have fallen into disuse; some habits, now indulged, might have been discarded; while a few objectionable measures might have been altogether forbidden as useless formalities and needless cruelties.

Horse Balls—particular forms of veterinary medicine—are generally sent to stables by the dozen. Physic is thus placed at the pleasure or the caprice of ignorance to administer. The author has seen a large chest full of such abominations—looking very pretty, and made up all of one size, each labeled, and bearing some distinctive title—directed to an English nobleman resident in the country. Such a supply, the writer was informed, is dispatched to "my lord's" address twice in each year, and is always used by the grooms, and by the stated period, in accordance with the accompanying directions.

The only safeguard attending such implements of destruction was that the majority were harmless, either from the worthless nature of the drugs composing them, or from the change which took place between the agents being compounded and at the time of their being employed. Many, no doubt, were thrown away; but that fact excuses neither the professional man who sent them, the honorable person who ordered them, or the ignorant servants by whom they were accepted. Each was impressed with a belief that such things were potent. It is astonishing how much of this world's sin is gilt over by its credulity. All concerned regarded these things as mysterious projectiles, strong enough to regulate the eccentricities of health and powerful enough to vanquish the dangers of disease.

One form of ball, however, is neither innocuous nor safe—it is the aloetic. Aloes is the common purgative of the stable. So general was the use of the drug, and so unquestioning appears to have, formerly, been the confidence lavished upon its operation, that this medicine always took the precedence in every sickness, and, ultimately, by popular consent, engrossed to itself the significant term of "physic." "Has this horse had physic?"—"Prepare this horse for physic"—when spoken in the stable, signify, has such an animal had aloes? or imply an order that another quadruped is to be prepared for a dose of aloes. The groom can only imagine that to be worthy of the title "physic," which is capable of producing visible effects; and, certainly, when judged by the stable-man's standard, aloes merits the distinction bestowed upon its drastic results.

Other things will move the bowels of the horse, and will empty its

intestines much more gently, and with altogether more safety; but the stable cannot, therefore, afford to part with its favorite representative of the many forms of medicine. Bran mashes, four of these being given daily, it is well known, will relax the animal's system; but the groom employs these agents merely as *preparatory* to the favorite dose of aloes; and, though repeated mashes will induce purgation in the equine patient, the groom is never satisfied unless that result be aggravated by a dose of aloes.

The horse's body does not quickly respond to opening medicine; but the action, once elicited, is not invariably easy to command. The animal's life is frequently a prey to a potent purgative. The veterinarian knows that the different creatures vary much in their capability of swallowing amounts of aloes; that the dose which will not move one quadruped may destroy the inhabitant of the next stall. One creature will imbibe two ounces of the drug without marked effect; another will be shaken by the action of less than half an ounce of the preparation. Nevertheless, the stable-man always craves for aloes, and always experiences an odd delight when watching for its hydragogue operation.

The farmers in Norfolk are strongly tainted with the superstition of the London mews. They also crave for aloes, and the youthful veterinary surgeon frequently yields to the demand. Young practitioners delight in strong doses. Accordingly, a full dose of aloes is sent to the Norfolk farmer, and by him rammed down the throat of some unfortunate teamster. The next time the novice encounters his customer, the man of the diploma is greeted with "Hey, doctor! doctor! what beautiful physic that were you sent for Slyboots! Oh! how it did work the poor thing, to be sure! If anything could have saved the beast, that must have done! But the time were up, and he died of a powerful inflammation. Thanke, thanke, doctor! Let's have your bill!"

This is the more lamentable when we consider that in nine cases out of ten, or rather in twenty-nine out of thirty, the administration of aloes is unnecessary. In the great majority of cases, its place could be advantageously supplied by bran mashes, which are readily made according to the following receipt: Put a peck of bran into a perfectly clean stable-pail. One person should stir the bran as briskly as possible, while another person, with speed, empties a sufficiency of boiling water into the pail to render the contents a pultaceous mass. The vessel is then covered up, and when it has become cool, the pudding is thrown into the manger.

However, one horse shall devour bran mashes with avidity, another will not touch them. This will not partake of the potion unless it be partially warm; another will not eat until it is perfectly cold; while

most will partake of the mess if it be flavored by the admixture of a little salt or a few crushed oats.

So it is, also, with water. Certain horses, when feeding upon bran mashes, refuse all drink; others enjoy frequent draughts of cold fluid; while a third set seem to crave warm water; and a fourth will neither imbibe freely nor entirely abstain, being wholly indifferent as to the temperature of the liquid. Thus the order, which is inserted in most books, to give to the horse, after the animal has swallowed a dose of aloes, copious draughts of warm water, is frequently rendered futile; for, as the proverb teaches, "one man may lead the horse to the pond, but forty men cannot make the quadruped drink."

Bran mashes, however, will act without the aid of repeated doses of warm fluid. Of themselves they do not debilitate, though from the length and size of the horse's intestines, purgation cannot be long maintained without inducing serious exhaustion; and it is never safe to work the animal while any looseness is observable. A tendency to inflammation is often announced by repeated and liquid discharges; therefore, never let the horse be taken out while the bowels are in a state of excitement, for exercise may increase that action to one of positive disease. Bran mashes, however, are the safest and the gentlest of laxatives. Any condition may be induced, according to the number and frequency of the potions. In general, they act mildly, without inducing that bodily discomfort and that constitutional weakness which throws the animal out of condition and renders rest an absolute necessity for recovery. Altogether, these mixtures are the best and the safest laxative of the stable; but even these should never be administered to the horse without the special direction of the proprietor.

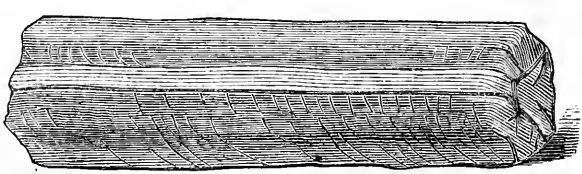
On the other hand, aloes can, in no form, be administered to some horses. Very many cannot receive a full dose of the drug. Several can only with safety swallow the medicine when highly spiced or in solution. While a few are all but insensible to the action of the agent. Alarming spasms often follow the exhibition of a moderate quantity of aloes, which always renders the quadruped sickly ere the effects are visible. The drug, in most instances, lies dormant twenty-four hours; during which period the appetite is lost, the spirits oppressed, the coat dull, and the entire system evidently shaken. It is not esteemed prudent to work the patient till several days' rest have been allowed for its restoration.

It used once to be the custom to trot the animal which was sickening under a dose of aloes; but experience has shown the danger of the habit. The horse is now left in the stable, has an extra rug thrown upon the back, while a pail of warm water is in most instances placed in the manger. Where safe, it is obviously unnecessary to ride the quadruped

which is sickening under aloes; since the loss of appetite shows the medicine has affected the system, and the natural effects of the physic may, therefore, be anticipated.

Very many animals, when suffering from chronic debility, may be slaughtered by a moderate dose of aloes, while many never sufficiently recover from purgation to do a day's work after the medicine has ceased to operate. Of all the preparations the veterinarian has at his command, the writer does not know one which exerts so decided an effect upon the constitution; nor does the veterinary pharmacopœia contain an agent which could be more advantageously dispensed with. During the years the author was in active practice, he does not remember to have ever given a dose of aloes that the symptoms did not afterward cause him to regret the administration.

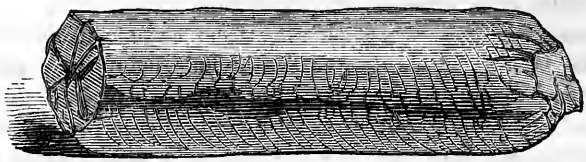
There is another fact rendering the aloetic ball an unsafe agent to be intrusted to the keeping of a groom. These things, as commonly compounded, become, in a short time, as hard as stones. The author has handled many which might be broken, but which could not be indented. Such bodies are not in a fit condition to be thrust down a horse's throat. All unyielding substances are liable to stick in the gullet, and to provoke choking—the digestive passages of the horse not contemplating the deglutition of other than moist and soft pellets of thoroughly masticated food. Aloes was, at one time, in spite of the objections urged, very popular in the stable; for that consequence, the late Professor Coleman was mainly answerable. They are at present chiefly employed in accordance with the dictates of routine, and usually take precedence of other forms of medicine.



A BALL, AS SUCH THINGS ARE SENT FROM THE VETERINARY PHARMACY.

A horse ball represents some substance in powder mixed into a mass with some moist ingredient, such as soft soap, treacle, palm oil, etc. The compounds, when united, are usually rolled into sticks about three-quarters of an inch in diameter. These sticks are subsequently cut into lengths of two and a half or four inches in extent, according to the amount required for a dose; each piece is weighed, is dusted with some non-adhesive powder, is securely wrapped in paper, is labeled, and is

packed away for use or sent out to such stables as delight in strange property.

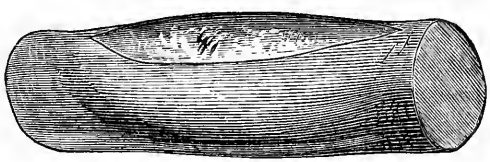


A BALL, OF THE FORM WHICH IT IS GENERALLY MADE TO ASSUME WHEN GIVEN.

Previous to a ball being delivered it is customary, with the generality of practitioners, to pinch the sharp edge of the forward extremity until that part of the substance becomes rounded. The intention, when doing this, is so to modify the shape as to facilitate the passage of the body down the gullet. Where the medicine is soft, as all newly-compounded drugs must necessarily be, the muscular contractility of the horse's swallow would render such trouble useless; but, as the ball must be rather pulpy which can be thus moulded by the fingers, it would be no more than a prudent regulation should every proprietor insist on this custom always being complied with. Whether the present practice in any degree is beneficial to the animal, the author is very dubious; at all events, the horse were very fortunate if the sharp edges of the forward extremity were the only danger it encountered when swallowing the physic which is supposed to be curative in its effect.

Several potent caustics rank among the most common of horse physics. Those agents are of great power; as bichloride of mercury, arsenic, nitrate of silver, sulphate of copper, etc. These burning compounds are frequently administered in substance, and in enormous doses. Even where the quantity prescribed is not objectionable, the form in which the caustic is generally given is calculated to be highly injurious. In the first place, the use of such things in the veterinary pharmacy is too common an occurrence for the compounder to bestow much care upon the accuracy of the weight—a scruple more or less being commonly esteemed of no importance. Next, small thought is bestowed upon the necessity of incorporating such fiery components with more mild ingredients before the mass is forced down the sensitive throat of a living creature. A ball made of linseed meal and treacle is quickly snatched from one of the drawers of the surgery; the powerful agent is speedily reduced to powder; the placebo is torn from its envelope; a slit is cut down its center; from the mortar the potent material is emptied into the cavity thus formed for its reception; and the whole, after having been rewrapped in fresh paper, is esteemed to be ready for delivery.

When such an article has been swallowed by the creature, in whose welfare no living being seems to take a genuine interest, the paper or outward investment is speedily removed by the action of the stomach. Then, the retaining cover being destroyed, the burning mass falls out upon the fine, moist, and velvet coat lining the viscus; this fact may very probably explain why stomachic diseases are so general with the majority of old favorites. As such substances are caustics when applied to the external flesh, it is only reasonable to infer that no tissue within the body could long withstand the burning properties of such potent destroyers. It is true that certain inhumanities, miscalled experiments, have been practiced upon living horses. Enormous quantities of the most destructive compounds have been poured down the living throats of submissive quadrupeds. Some animals long survived such disgusting brutality; but others have succumbed at the very commencement of the trial. Veterinary therapeutics, however, take no notice of such as yielded to the smaller dose. The men who conducted these cruelties delight to dwell upon the fact that a certain horse actually took so much of such a poison, and, *apparently*, suffered no ill effects from imbibition of the deadly potion.



A COMPOUND BALL, AS PREPARED IN TOO MANY VETERINARY PHARMACIES.

However, supposing such an experiment were made on human beings. Let a certain number of cripples be procured from the workhouses; aged creatures whose span of existence was almost run, and on whose countenances years of suffering had impressed the lines of prolonged misery. Let such poor mortals be deprived of speech, and let all the signs of suffering in them be disregarded. Then force these wretched beings to swallow large quantities of the various poisons. Would all perish simultaneously? By no means. Affliction often acts as a defense to those whom it envelops. Men in different stages of distress have endured strange things, as during every hour the record of calamity makes known.

The poor animals which served for the subjects of the so-called veterinary experiments were procured from the knackers; they were in the last stages of disease, and the poison, which would kill healthy horses, acting upon frames exhausted by every possible accumulation of agony, probably may have stimulated the exhaustion of excessive debility.

That which would destroy an ordinary life, acting upon an existence sinking to its last sleep, may, to the blindness of mortal recognitions, appear to work without sensible result, or may seem to recall the fleeting spirit back to earth. At all events, no sound deduction can be drawn, as to the action of any medicinal substances upon the healthy body, from the apparent influence exerted by such agents upon decrepitude and upon senility.

The so-called experiments, which are here alluded to only to reprobate them as horrible cruelties, very probably have induced the carelessness that prevails throughout veterinary practice as to the use of caustic bodies among its customary medicines. Such salts should, on no account, be exhibited in substance, if, indeed, their supposititious virtues should recommend them at all to the prescriber. During the years which the author was in practice he scrupulously abjured all these abominations, and the results which were obtained by gentler agents were such as did no discredit to the adoption of milder measures.

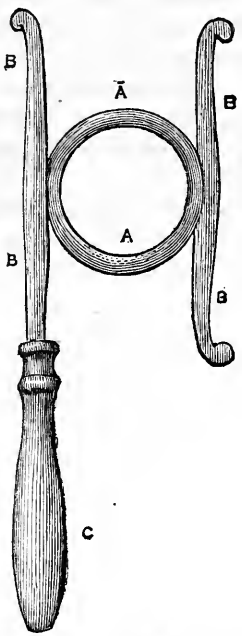
Humanity should prevail consistently throughout all acts forced upon the life which Providence has intrusted to our mercy. If the recognition of this duty, as an actuating motive, be a weakness, in its adoption is carried its own defense. If charity does no good, it cannot possibly work harm to the dumb life upon which its offices are expended; whereas, when administering balls to horses, the cruelty often indulged causes many of these gentle animals to acquire those habits of resistance which are at first no more than the wild efforts of conscious helplessness aiming at self-defense. Such timid creatures, influenced by fear, will instinctively rear, kick, and vigorously attack whoever may approach them.

He who will have the patience and the courage to encounter what is in stable language denominated "a savage horse," may do so with every confidence. Let him approach the quadruped alone, when the groom is absent and silence reigns around. Nothing must be done quickly. When the horse moves, the man must remain stationary. Every symptom of alarm must be assuaged by kind looks and gentle words. When the horse is convinced that no injury is designed—and it is astonishing how quickly a generous spirit will comprehend the intentions of benevolence—in proportion as ferocity was previously displayed will gratitude gush forth and submit the huge body to man's pleasure.

If, however, the person has neither time nor inclination to undertake such a trial, then, with an animal having a tendency to become excited, he must adopt one of those mechanical restraints known as **balling-irons.** These things are not altogether safe for their employer, while they are decidedly not beneficial in their operation upon the quadruped. A balling-iron is simply a piece of metal, so shaped that when thrust violently

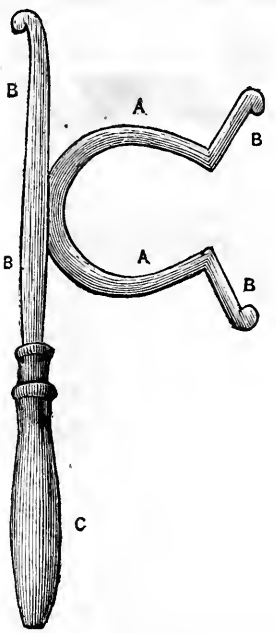
between the creature's jaws it forcibly holds the mouth open. Therefore, it will certainly prevent biting; but an irritable or a fearful horse can rear up and strike with its forefeet. Such an animal is not entirely subdued when the iron is adjusted. Moreover, these instruments occasion pain, and the horse, instructed by repeated agony, soon grows very cunning, and equally resolute in its efforts to oppose the insertion of the dreaded instrument which causes its suffering.

The man using a balling-iron has, therefore, to guard himself from blows rapidly dealt with the forehoofs of a desperate animal.



THE COMMONEST FORM OF BALLING-IRON.

A A. The ring of iron which, being forced into the animal's mouth, keeps the jaws asunder.
B B, B B. That portion of the metal which steadies the ring by remaining against the jaws.
C. The handle.

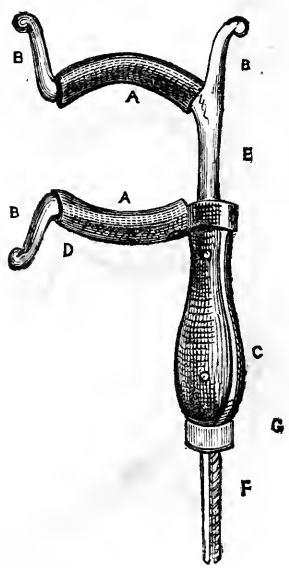


THE IMPROVED FORM OF THE COMMON BALLING-IRON, WHICH AFFORDS A PROBABILITY OF ESCAPE FOR THE OPERATOR'S ARM.

A A. The part forced into the mouth.
B B, B B. The parts which remain against the jaws. C. The handle.

He has also to be ready at the slightest intimation of an intention to rear, so that he may withdraw his arm on the instant, otherwise the operator is dragged upward with the elevated crest, and, hanging by the inserted member, he is very lucky if a broken limb does not reward his tardiness. The use of the balling-iron, consequently, is not free from danger; and in practice it will be found safer to subdue by kindness than to partially conquer by the employment of mechanical restraints.

The most common form of balling-iron is constructed according to the model indicated in the preceding illustration. The circular piece of metal is inserted into the mouth of the animal. A straight bar is attached to either side of the metallic ring, the design of these last being to steady the instrument after it has been forced into its proper position. Through the circle the operator's arm is thrust, and the iron ring affords security so far as it disables the jaws from closing upon the member. But, though safe in one direction, such a protection also creates its particular peril; for, should the horse rear, the arm, being surrounded by a metallic rim, could not be withdrawn with the speed requisite to insure the operator's safety. The suspension of the man's body is almost certain to provoke the fracture of his imprisoned limb; consequently, to remedy that evil, the improvement indicated by the right-hand illustration was introduced.



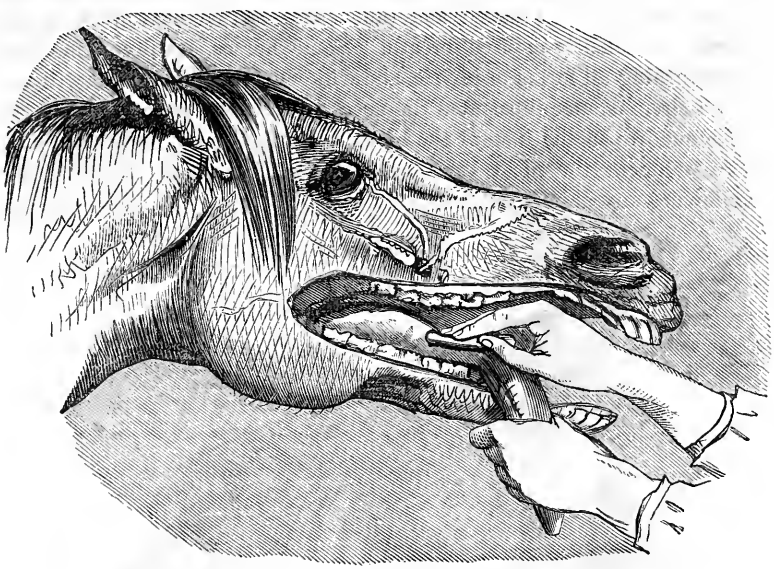
A NEW BALLING-IRON, INVENTED BY PROFESSOR VARNELL, OF THE ROYAL VETERINARY COLLEGE, LONDON.

A A. India-rubber tubing, to protect the mouth from the harshness of the metal bars.
B B B. Side pieces to keep the iron in its situation.
C. The handle.
D. The lower bar, attached to the handle.
E. The side piece, which can be raised or depressed.
F. The screw, at the extremity of the side piece.
G. The nut which, fastened to the handle, acts upon the screw and fixes its position.

The circle in the foregoing is left free on one side; thus, the inexpert have a little more time allowed for their movements. The arm could be retracted with greater ease, and the former danger was, in a great measure, removed. Still, this new shape was not wholly satisfactory. The form was fixed: horses are not all of one height, one breadth, or of one capacity. There are small creatures designated ponies; while horses are not rarely encountered of enormous proportions. As the iron has no power of being adapted, the form that should prove not large enough for one may be altogether disproportioned to another quadruped.

The weight of metal necessarily employed to assure the requisite strength, also rendered it inconvenient for a veterinary surgeon to carry more than one of these bulky articles; and though small was the amount of ingenuity which had hitherto been lavished on the improvement of the thing, for years it continued of the last character. Mr. Varnell, assistant professor at the Royal Veterinary College, however, appears to have entirely removed

all former objections, and to have invented a balling-iron which seems to possess all the qualities that such an instrument is capable of exhibiting. The restraining bars of this last amendment are formed of polished steel, and are covered with a stout piece of India-rubber tubing, thus in some measure protecting the mouth of the creature from injury by what hitherto was the exposed metal. The lower bar, moreover, is attached to the handle, and the handle can be readily raised or depressed by turning the nut situated at its base. It can, therefore, be quickly adapted to any possible capacity of jaw.



THE USUAL MANNER OF GIVING A BALL.

Such a form of immunity is, however, seldom sought, save by the very inexperienced in the veterinary practice. A few years of active employment enables any person to discard this defense. A sufficient security is in all ordinary cases afforded by the horse's tongue, which, when a ball is about to be administered, is grasped by the left hand, and withdrawn to the right side of the mouth. The hand thus employed is fixed, being lightly pressed against the inferior margin of the lower jaw; for, when retained in such a position, the tongue is pressed upon the foremost of the huge molar teeth. Of course, the animal, thus held, cannot approximate its jaws so as seriously to harm the operator without biting its own flesh; by that circumstance is safety supposed to be rendered

certain. But should violence be exerted, animal fear is apt to be superior to bodily pain; the tongue and arm may be simultaneously bitten through. The practiced veterinary surgeon, however, takes advantage of the first emotion of surprise which the creature experiences at the liberties taken with, and the indignities offered to, its person. Having the ball ready in the right hand, he, standing on the left side, quickly introduces the bolus into the wondering quadruped's mouth.

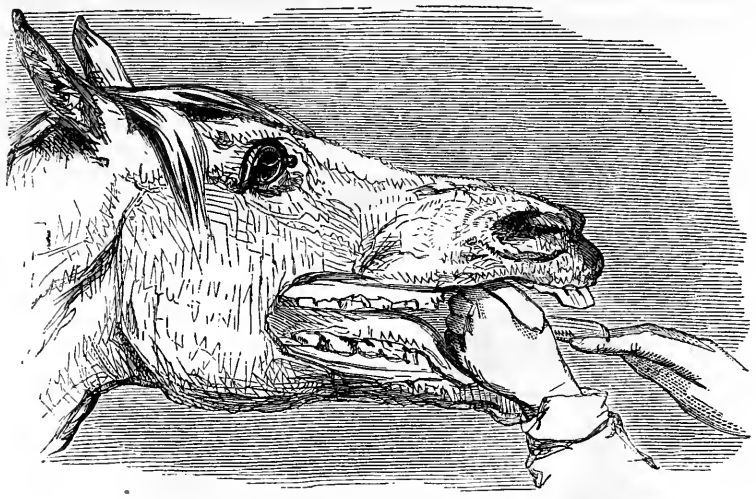
The medicine is lodged at the back portion of the tongue, whence, as the horse does not expectorate, the creature has no ability of expelling it, save only by coughing. During the spasm, which accompanies this act, the soft palate is raised and the ball is carried outward with the volume of violently-expired breath. Some horses acquire a habit of thus returning all forms of physic, and will cough up a ball twenty times. Such a circumstance illustrates the necessity of distracting the attention of the quadruped the instant the hand is retracted; for in the confusion of the moment the most inveterate "dodger" may be surprised into swallowing any abhorrent morsel.

THE CUSTOMARY MODE OF DISTRACTING THE HORSE'S ATTENTION, AFTER IT HAS RECEIVED A BALL.

The hand, during the delivery of the ball, being rapidly thrust into the mouth, is frequently cut by the sharp edges of the molar teeth. No knowledge, which has hitherto been attained by veterinary science, can point out the animal possessed of grinders of this dangerous description, and the only protection as yet suggested is to cover the hand with a glove. But a glove cannot be washed and dried so readily as the hand;

it, moreover, is highly objectionable to introduce the saliva of one animal into the mouth of another, as disease may be thus conveyed from horse to horse also, it being impossible to provide a new glove with every fresh patient, the protection is not universally adopted.

The medicine being delivered, the hand is quickly withdrawn, and the jaws of the animal are clapped together. The nose is then rubbed somewhat roughly, for—the upper lip being the organ of prehension, as well as the seat of feeling, in the horse—this part is excited with the design of preventing the quadruped from dwelling too intently on the unpleasant nature of the substance which has just been forced into its mouth.



A BALL BEING ADMINISTERED ACCORDING TO MR. GOWING'S DIRECTION.

Mr. Gowing, the excellent veterinary surgeon, of Camden Town, has, with his usual ingenuity, endeavored to remove those objections to which the previous manner of delivering a ball is obviously liable. This gentleman grasps the tongue rather higher up than is customary; and, having done so, does not retract the member, but fixes the hand upon the gums which cover the upper margin of the lower jaw. The point of the tongue protrudes between the thumb and fingers, and it is then plain that the animal cannot close the mouth without biting upon its own flesh.

Yet candor obliges the author to state that he does not view this method of grasping the tongue as an improvement on the old practice. The tongue, not being drawn out of the mouth, is not so decidedly fixed

upon the molar teeth; while the hand appears to be placed in a somewhat dangerous position. For if, under excitement, the horse can become so oblivious as actually to bite through its own flesh, how would the hand of the operator fare when the closing of the jaws should lacerate the lingual body? The only advantage which can attend upon Mr. Gowing's proposed plan must result from the smaller outrage it offers, thus leaving the amiable disposition of the animal the better chance of controlling its emotions.

It is, therefore, demonstrated the tongue can afford the operator no decided protection; the question, consequently, resolves itself into which of the methods affords the hand the greatest immunity, should the animal become alarmed. The author cannot but think the outside of the jaw is, under such circumstances preferable to the interior of the mouth.

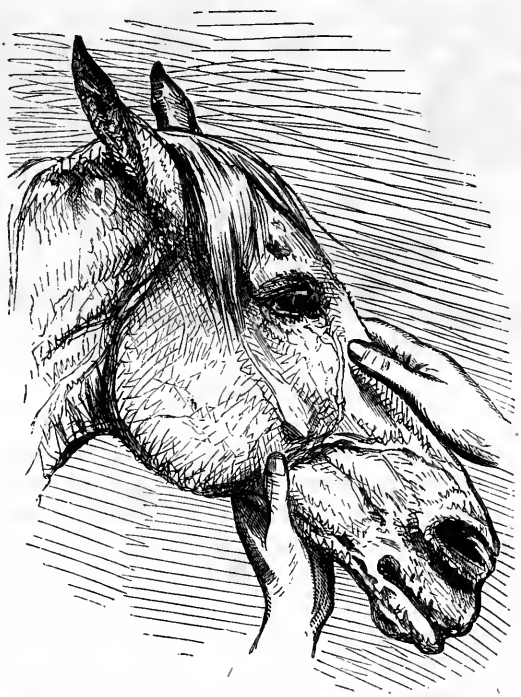
MR. GOWING'S EXCELLENT MANNER OF DELIVERING A BALL.

However, the method proposed by Mr. Gowing for holding and delivering the ball is unobjectionable. According to the plan adopted by that gentleman, the knuckles are not elevated; but the hand is extended, the thumb and fingers being all brought upon one level and all held close together. The ball is placed between the fore and middle fingers, on the same level as the hand generally, being retained simply by slight lateral pressure. In this position it is introduced, and evidently demands less space for its entrance than was required according to the former system. When the ball has been advanced to the desired situation, a separation of the fingers allows the morsel to drop into its place.

Some stress, however, is laid upon the manner of clasping the head after the ball has been lodged. Mr. Gowing claps-to the jaws and evidently contemplates holding them in apposition. This is a mistake; for the muscles of the horse are not to be controlled by the utmost power of the strongest human being. The old custom, which applied friction on the most sensitive portion of the horse's body, the writer esteems as better calculated to distract the attention of the quadruped.

The delivery of a horse ball is, however, rendered difficult in proportion to the number of persons who surround the animal, and to the noise made on the occasion. For the above reason, all the pupils at public

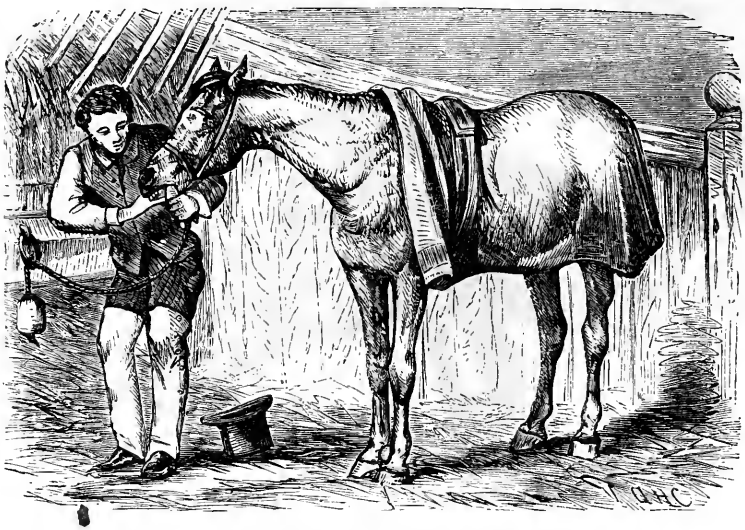
schools have to learn this portion of their profession under heavy difficulties. The fuss which accompanies this simple operation in such institutions alarms the horse. It is turned round in its stall; the twitch is put upon the upper lip; a futile attempt is made to hold the jaws apart; while the nervousness of the young student who is about to perform,—all are likely to exercise an evil influence upon a sensitive and a timid creature.



MR. GOWING'S METHOD OF GRASPING THE JAWS AFTER THE DELIVERY OF A BALL.

Veterinary surgeons, however, soon learn to give a ball with greater speed and with less ceremony. They go alone up to the head, and play for a time with the quadruped's face. Confidence being thus established, the practitioner gently withdraws the creature's tongue. This being accomplished, of course the jaws are sundered; when, without any sign of flurry, the hand is introduced into the cavity and the medicine properly lodged. After such a manner, the practiced veterinarian gives many balls in the course of the day, and is hardly ever known to fail. Indeed, were the practitioner, when going his rounds, to wait till

four or five assistants could be collected ere he administered the requisite medicine, the duties of the day could never be discharged.



THE QUIET METHOD OF GIVING A BALL.

The physic being introduced into the mouth, the person who has undertaken to deliver it should on no account esteem his business finished, and thereon leave the stable. He should proceed to the left side of the horse and watch the neck. In that position, when the animal swallows, any substance can be seen to travel down the gullet; this proof having been witnessed, the building may be quitted with a safe conscience. The illustration of this fact was drawn on the wood correctly; but the artist did not make proper allowance for the transfer of his sketch by the engraver. The last process has made that which was originally on the left side of the neck appear as on the right side of the body.

Drinks or draughts are not in favor with the majority of veterinary surgeons. Most practitioners urge, in justification of their dislike to such a form of medicine, that solutions are attended with danger—being apt, when administered, to pass into the trachea, and thus to flow upon the lungs. Admitting this objection, it does not decide the question; for the advocates of solid physic can possess small experience if they are to be told that balls have proved injurious by also entering the forbidden channel. Likewise, that when the popular form of physic has grown hard, much harm has been occasioned by the mass becoming im-

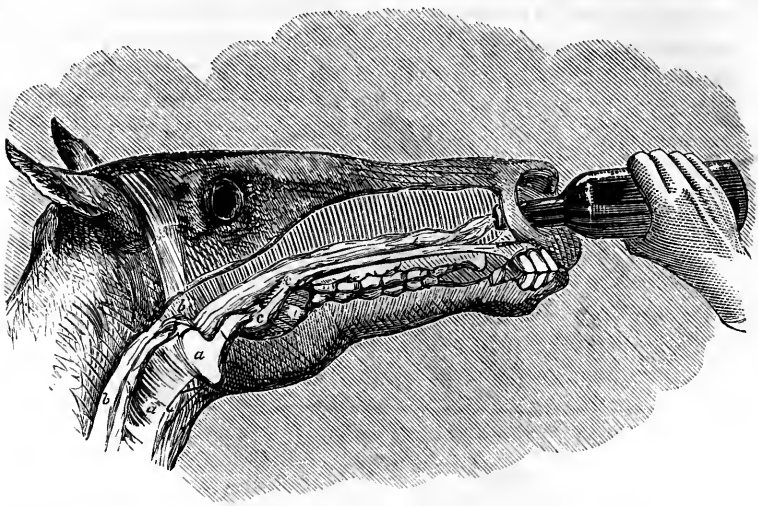
pacted within the gullet. Evil can, therefore, be caused by physic in either form, if given without the necessary caution; and the balance of fact can incline the judgment to neither one side nor the other.

A BALL PASSING DOWN THE HORSE'S GULLET.

But it is curious to read of serious dislike being entertained against drinks, and at the same time know that several practitioners are accustomed to administer this kind of medicine after a particular method, which evinces a desire to illustrate the very circumstance which constitutes the objection to every solid. Many country veterinarians are accustomed to pour all the liquids which they exhibit down the nostril of the animal. Now, the nostrils terminate immediately over the larynx —the direct channel is from one chamber into the other cavity—thus, any fluid administered after so unnatural a method will probably find its way on to the lungs.

Such an abuse of nature's designs being largely practiced upon a powerful quadruped, is proof of the perfect submission with which the creature has accepted its appointed master. Such an absolute negation of self, deserved considerate recognition from the reasoning and superior being. Veterinary medicines are too generally composed of pungent and of caustic materials, while the nostrils are lined with a highly sensitive and delicately moist mucous membrane. It was created to come in contact with the air, to which the nostrils in the horse afford the only legitimate passage. The notion of disregarding the mouth and selecting so tender a channel, down which to pour acrid and burning solutions,

appears to be such a refinement upon ordinary barbarity as must puzzle the reader to discover a motive to excuse.



THE NATURAL CONSEQUENCE WHICH IS TO BE EXPECTED WHENEVER THE FILTHY CUSTOM OF POURING DRINKS INTO THE NASAL CHAMBER OF A HORSE IS ADOPTED.

a a. The windpipe. *b b*. The gullet. *c c*. The soft palate. *d*. The tongue.

The fact appears the more monstrous when we consider the practice is adopted by the veterinary surgeon, and that it is exhibited upon the sick horse whose welfare he is especially bound to conserve. The irritation consequent upon so abhorrent an abuse cannot but be most prejudicial to that quietude which is, upon every form of existence, healing in its effect. The motive which prompts so outrageous a proceeding is the love of display, acting upon an ignorant or unscrupulous individual; joined to this, is the knowledge that medicine can be administered with greater speed than when delivered according to the natural method. The horse has no power to check the course of any liquid emptied into the nostril of the elevated head; whereas the animal will frequently occupy a considerable time before a fluid, delivered by the mouth, is swallowed. By one canal, the will is powerless; by the other channel, volition is operative. To save his time, as well as to excite surprise, are the only motives which can prompt a careless man to tamper with that welfare it is his duty to tenderly protect.

To render this subject the more intelligible to the reader, the natural process which enables the horse to imbibe liquids shall here be detailed. The mouth of this animal is peculiar for having at its backward ex-

tremity a fleshy screen, which hangs pendulous from the bony roof. This soft palate explains why the quadruped, under ordinary circumstances, breathes only through the nose; and why, when it vomits, the regurgitated matter is ejected by the nostrils. That specialty is of service, however, during the act of imbibition. The posterior entrance to the nasal chamber being open and the head in a pendulous position, were there no special provision to the contrary, the water, after having passed the mouth, would, from the mere force of gravity, have

FIG. 1.

DIAGRAM, (FIG. 1,) EXPLANATORY OF THE COMPOUND ACT OF DRINKING IN THE HORSE.

a a. The water drawn into the mouth and forced into the fauces by the compression of the forward part of the tongue and the enlargement of the backward portion of the organ.
b b. The fluid passing down the œsophagus or gullet.
c. The larynx, lowered to admit the passage of the liquid.
d d. The tongue, dilated at one place and contracted at another.
e. The soft palate, floated upward and effectually closing the nasal passages.

a tendency to return by the nostrils. This actually occurs whenever cold, strangles, influenza, sore throat, etc. interferes with the activity or the health of these parts now under consideration. Disease renders the organ sensitive, and tenderness makes the animal exert its volition to prevent the employment of the inflamed structure. In consequence of this cause, the nasal chambers are imperfectly closed, and a great portion of the fluid imbibed by the mouth flows forth again through the

nostrils. Such a tendency to gravitate is, during health, effectually prevented by the soft palate. Before any substance can pass from the mouth toward the throat, that appendage must be raised, and its rising closes the posterior entrance to the nasal chambers.

The tongue is the primary agent employed when the animal slakes its thirst. The backward portion of the organ is contracted, and the forward part compressed by muscular volition, (*d d*, fig. 1.) A vacuum would thereby be created, were not the water propelled by atmospheric

Fig. 2.

DIAGRAM, (FIG. 2,) EXPLANATORY OF THE COMPOUND ACT OF DRINKING.

a a. The water driven backward by the forward dilatation of the tongue and the upward movement of the larynx.
b b. The full current forced down the gullet.
c. The larynx propelled against the soft palate.
d d. The tongue, dilated anteriorly and compressed posteriorly.
e. The soft palate.

pressure into the void thus formed, (*a*, fig. 1.) The posterior of the tongue is then relaxed, while the anterior division of the organ is pressed against the roof of the mouth, (*d d*, fig. 2.) The fluid is thereby driven to the backward part of the cavity, (*a*, fig. 2.) The tongue, during the act, continues to alternate the states of contraction and relaxation, each motion of the lingual agent serving to pump the water into the fauces, (*a*, fig. 1.) But, before that can be accomplished, the soft palate must

be elevated. The soft palate (*e*, fig. 2) then closes the nostrils, (*e*, fig. 1;) and also in its course to take this position sets in motion the cartilages of the larynx. The last cover over and effectually protecting the windpipe, (*c*, fig. 1,) the fluid is forced onward by the contraction of the tongue, passes into a secure chamber, the roof and floor of which are but of temporary formation, (*a*, fig. 1.) Here it remains only during the inactivity of the larynx. The upward motion of the latter body (*c*, fig. 2) propels the fluid into the pharynx, whence involuntary contractility sends it into the gullet, the muscular action of which tube conveys it onward to the stomach, (*a b b*, fig. 2.)

From the foregoing explanation, the reader is in a position to judge whether the nasal chamber is a fit passage for acrimonious mixtures, since he now understands the evident pains the *All-wise* has bestowed to prevent the temperate fluid, of which the animal customarily partakes, from intruding upon the elaborate, delicate, and highly sensitive membrane that lines the air-passages. All veterinary students are not educated men, neither are all attentive to their studies while at college; but it should require an extraordinary amount of ignorance and conceit to thus grossly misconceive the *intentions* which are so plainly impressed upon the body of the quadruped.

The author, however, doubts if those objections generally advanced to drinks are in any degree derived from the results of actual experience. Balls can be manufactured by the score, and then stored away for subsequent use. Drinks would decompose if thus mixed and kept ready in the surgery. Drinks must be separately compounded, as required. Balls occupy little space, and being solid can be safely carried or forwarded to any distance. Drinks being contained in bottles, are less convenient for transport, and the vessels are liable to fracture. Balls, moreover, are to be quickly thrust down an animal's throat; require no assistance for their administration; and being wrapped in paper are not exposed to inquisitive discussion as to their ingredients. Drinks being inclosed in glass, protected only by a cork, are open to investigation, and likely to provoke remarks which are not always soothing to the pride of a pretender; liquids likewise necessitate more time should be devoted to their exhibition, and generally require the assistance which is not invariably at hand to aid the veterinary surgeon.

The above reasons and objections are not without influence upon practitioners, whose earnings are greatly dependent upon the speed of their movements; who generally give the medicines to those animals they treat, and habitually carry with them, ready compounded, the drugs which they administer. Drinks, moreover, demand several bulky articles for their proper administration, and are apt to soil the person who de-

livers them. Balls, as a rule, call for no other apparatus than the hand. Moreover, it causes delay at starting, if there are twenty or thirty drinks to be previously mixed, bottled, labeled, incased in paper and so packed as to be in no peril of breakage; whereas any number of balls can be almost instantaneously transferred from the drawer in the surgery into the gig at the door.

The usual mode of giving a drink is, moreover, a complex business. A twitch is mostly kept in regularly appointed stables, and the string or loop is fixed over the animal's upper jaw, prior to other measures being proceeded with. The groom then grasps the stick and takes his place by the shoulder of the horse. At a previously arranged signal, he raises the pole; the string, paining the gums under which it is fixed, causes the head of the quadruped to be elevated. Supposing the horn having the larger mouth to be employed, the drink is then emptied into the hollow of this rude appliance until the liquid nearly fills the interior. The fluid is next carried upward, two fingers of the operator's left hand being fastened on to the gums, so as to further expand the jaws and enable the veterinary surgeon to steady his body while straining to administer the medicine. The large end is pushed into the quadruped's mouth, and, by a sudden movement of the wrist, the contents of the horn are meant to be splashed upon the animal's tongue.

THE COMMON FORM OF THE HORN EMPLOYED TO ADMINISTER DRINKS.

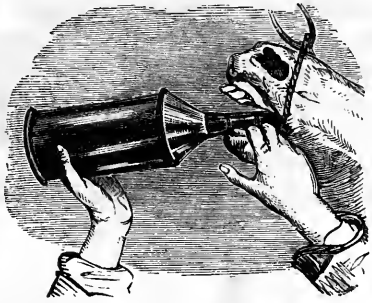
AN IMPROVED FORM OF HORN.

This, which is the more common method of administering a drink, is open to several objections. The horn, being of a limited capacity, can hold but a small quantity; and the lengthened time required for frequent replenishing, necessitates that the animal should be long held in an attitude of unnatural constraint. In the next place, the fluid is, by the action of the wrist, rather rudely thrown, than gently emptied, into

the mouth, much of the medicine is generally lost, and no little of it, guided by the inserted fingers of the operator, is apt to find its way down the sleeve of his left arm.

To remedy these obvious defects, the tip of the horn was sawn off; while a piece of wood supplied a bottom to the larger extremity. A rude bottle was thus formed that would hold a larger amount of fluid, and from which the medicine could flow more gradually. The smaller opening afforded greater facilities for inserting that end between the horse's extended jaws, and was less likely to pain, when introduced into the animal's mouth. Still, drinks usually consisted of much more than the horn of an ox would contain, and as the smaller opening demanded greater care, when the article was being replenished, little time was saved by the last improvement.

A TIN BOTTLE TO HOLD THREE PINTS.



THE MANNER OF USING THE TIN BOTTLE.

A large tin bottle was next employed. It is of dimensions sufficiently capacious to require no replenishing; this was an advantage in one direction, an objection in the other; for in proportion to size it became inconvenient to transport. It rather aggravated than ameliorated the fault urged against drinks, because of their bulk. The mode of its employment is made plain in the right-hand illustration, where a loop of string is depicted as hung upon the prong of a pitchfork, and is made to do duty for a twitch—such a substitute being far from unusual, even in well-appointed stables.

Should the operator, having much fluid at command, fill the mouth too full, or the animal cough during the time of its administration, the administrator is saturated with the medicine. Any irritation of the larynx is invariably productive of this effect; the result of which a reader will the better understand, after the relative situation of those who are engaged in delivering a drench is fully comprehended.

The misfortunes which the delivery of drinks almost necessarily in-

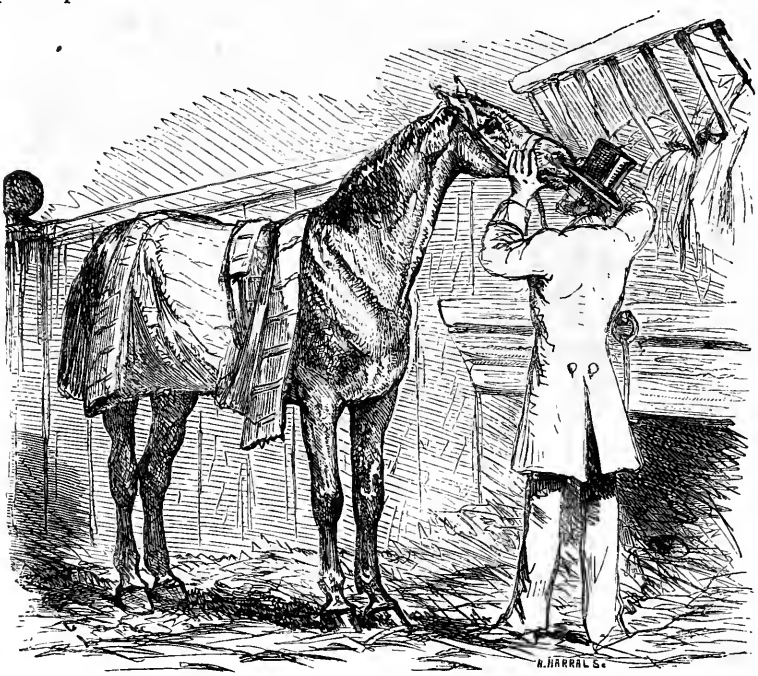
volve, will very readily account for any amount of dislike to the fluid form of medicine, more especially when it is stated that veterinary surgeons are somewhat slow in adopting new ideas, but seem, with the fervor and tenacity ignorance displays toward a favorite superstition, to love and cling to the practices in which they have been educated.

GENERAL METHOD OF ADMINISTERING A DRINK TO A HORSE.

Else, it must have occurred to some member of a large profession that to violently oppose the instincts of an animal was hardly commendable in people who professed an observance and a worship of nature's teaching. Most animals, however, and the horse among the number, lower the mouth during the act of drinking. The veterinary surgeon, when proceeding in his professional capacity, employs a twitch, with which the head is to be violently upheld while a fluid is being deglutated.

To illustrate the consequence of such conduct, the reader will pardon the author if he state the results of such opposite proceedings upon a dog in his possession. A saucer of milk being placed upon the floor, the head is lowered and the liquid lapped, without the act being characterized by any unusual circumstance. But should the vessel be held on the ordinary level of the mouth, the draught is certain to be interrupted

by repeated fits of coughing. Now, the danger that exists of the horse coughing and spasmodically drawing the fluid upon the lungs, constitutes the strongest argument urged against the administration of drinks; but such an objection sounds oddly if he who listens to it is aware that, during the administration of fluids, the horse's mouth is fixed according to the manner which will certainly provoke the obnoxious act in another quadruped.



GIVING A DRINK, ACCORDING TO THE QUIET METHOD.

All this is very sad and may readily be corrected. Let men endeavor to rightfully interpret the disposition of the horse. The creature is a most pleasant study; it is so timid, so loving and so confiding, that it immediately responds to the kindness which is intelligible to its understanding. Should it hang back, the fault rather lies with its limited comprehension than with the promptings of its inclination. Let the person who intends to deliver a drink fearlessly approach the animal: allow the huge nostrils to smell their new acquaintance, and not till the process is concluded, proceed to such trivial familiarities as may establish perfect trustfulness between the man and his dependent. So soon as the steed's confidence is gained, the animal is all submission to the

pleasure of its superior. Then let the practitioner uncork the bottle, and, putting the left hand gently under the quadruped's jaw, empty with the other the contents, gradually, through the interspace which divides the incisors from the molar teeth.

But when adopting the above plan, the operator must be alone. No noisy or officious assistant must be near at hand to excite alarm or to create distrust. No pain must be inflicted; no angry words should be employed; no violent or hasty action ought to be used to frighten native susceptibility. All must be quiet. Should the animal be slow to swallow a nauseous draught, the creature must not be scolded for a natural dislike; but it should be encouraged by kind and cheerful accents, spoken as softly as though the words were addressed to a sick child. So alive is the equine heart to the seductiveness of benevolence, so unsuspecting is the full confidence of its species, and so happy is its spirit made by the praises of its superior, that rather than not deserve his commendation it will gulp down the most distasteful solution.

Blistering.—It is not praiseworthy to the human race that the animal given to man, with a mind thus impressible and yearning for kindness, should be treated with severity, and regarded as a brute, to be beaten and to be subdued. Such, however, is the case, and upon the poor body of this amiable life all kinds of cruelties are practiced. There is no barbarity more common than to blister the legs of the quadruped. Only of late years has the blistering application been somewhat reduced in strength; but it is still far more potent than is necessary. Our fathers, however, added all kinds of fiery and irritating drugs to Spanish fly, and never used to filter the extract; whereby particles got into the sores and cracks induced by the blister, and it was common for large pieces of skin to be removed by the sloughing process. A blemish was thus created.

Horses have perished under the agony attendant upon the blistering of all four feet. It is, however, still a recognized custom for horse doctors to score a leg or sometimes two legs with the red-hot iron, and over the lines thus created on a living frame to apply a liquid blister. To fully appreciate the abhorrent barbarity or the inutility of such a custom, the reader must recognize that animals suffer awfully from the wounds occasioned by fire, and understand that the sores are newly made, when the irritating liquid is placed upon the tender parts. A blister necessitates that the oil which contains the extract of the fly should be thoroughly rubbed in. Therefore the horse, when blistered, after having been fired, has to endure the friction of a rough hand, applied with all the coarse energy of an uneducated man, made upon a member smarting under the agony produced by the agent of which the creature has an instinctive dread.

Blisters, as at present used, are far too powerful. Were they diluted with three times their bulk of bland oil, or of solution of soap, they would be equally effective and far less dangerous. But, unfortunately, there is a prejudice among the partially educated, to which class nearly all veterinary surgeons belong, in favor of potency in their applications. Such persons seem to reckon the benefit to be produced according to the strength of the agent employed. By what other reason is it possible to explain the foolish perversity which still clings to the abuse of the heated iron? By what other motive can we account for the prejudice which tempts the use of the fearful blistering oil, as now commonly exhibited?

The parts of the horse most generally blistered are the legs, and the explanation commonly given to excuse the folly is a desire "to freshen the old animal on the pins," or "to brighten up the manner of going." The legs are parts of the living frame, and one part can hardly fail without the general system sympathizing. The author was once as tired as the horse commonly may be supposed to be; but, on that occasion, his feet were restored long before his body recovered from its exhaustion. Such a personal testimony seems to witness that fatigue affects the system generally. Indeed, the legs may be the means of progression; but it is the life which puts them in action, and it is the nerves which transmit energy to the muscles; none less ignorant than the generality of veterinary surgeons and the lower order of horse proprietors, would have conceived the possibility of restoring animation to a debilitated system by torturing the parts in which the symptoms of decay are most prominently testified.

Moreover, there is a maxim, first made known by John Hunter, and subsequently recognized by the profession of which he was the ornament. This maxim declares that "two great inflammations cannot exist in the same body at the same time." Upon the truth of this discovery, the practice of counter-irritation is based. Then to fire and to blister simultaneously may increase the torture of the poor existence thus barbarously treated; but, according to the doctrine largely accepted by the medical profession of this country, the double process accomplishes nothing surgical or curative, since the blister must destroy the action of the fire; and the man who is greedy to obtain the benefits of both operations, secures the advantages of neither measure.

To blister, however, is a very antique custom; so, also, is the application of fire, which was first performed upon the human body. Old medicine does not bear a very good character, and only exemplifies the much which suffering can endure, or the little which cruelty can accomplish. So far as horses are concerned, little would be sacrificed were the

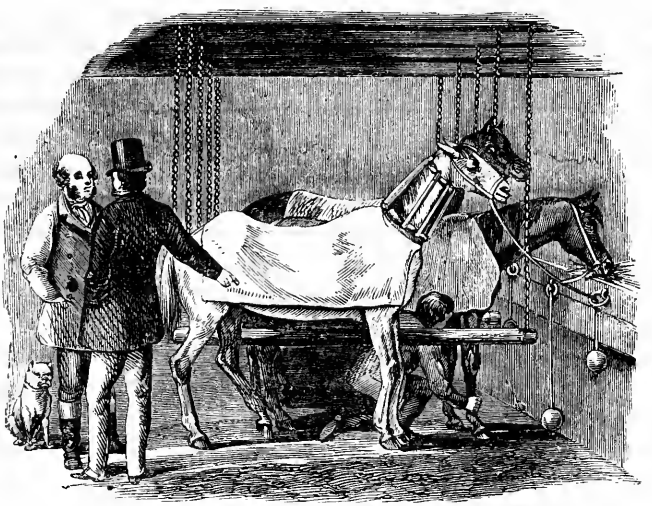
entire list of vesicatories lost to the knowledge of mankind. The blister is, according to present veterinary practice, employed more often to gratify the passing whim of some wayward proprietor than with any medical intention or with the remotest regard for the quadruped. A man, while lounging through the stable of an evening, a prey to lassitude and the victim of idle thoughts, but without the slightest pretense to medical knowledge, may conceive he will have the entire stable blistered "right through," and few veterinary surgeons will presume to expostulate with so wild a notion.

The compliance of the professional attendant is, however, in strict keeping with opinions implied by the expressions commonly employed by "horsemen." Thus, it is very general to hear these persons speak of—"a good horse with battered legs"—"a beautiful animal, but with legs that have done their work"—"an excellent frame, but not having a leg to stand upon," etc. Such phrases are sheer nonsense! But they serve to countenance the equine superstition which regards the legs as distinct from the body. The stable-man cannot conceive a want of liveliness in the motions to be one of the indications of failing health. Yet this symptom pervades all nature. It is exhibited by beasts, by birds, by fishes, and by insects; nay, the very vegetables, when disease attacks them, no longer spread their branches to the breeze, but droop their heads and incline their bodies earthward.

To propagate such opinions, however, must destroy much of the power so dearly loved by the vulgar horse owner, and abolish much of the pleasure such a person experiences when surveying his long rows of miserable dependents! These men are always corrupt! It is astonishing how unfitted human frailty is to possess absolute authority in any shape! The men who live and think in stables are never so happy as when exercising their despotic power. The next illustration is an example of this fact. An omnibus proprietor has entered to speak with a veterinary surgeon, who is witnessing the man's orders fulfilled on the forelegs of a wretched stud. Let the reader contemplate this engraving, and he will soon perceive the animals stand in need of something far less costly than any mixture which can proceed from the cheapest pharmacy.

It will be remarked that the creatures represented are separated by "bales," or long poles, suspended by chains from the ceiling. This kind of arrangement permits more horses to be packed into a limited apartment, and is, therefore, adopted whenever the expense of lodging becomes a primary consideration. It will also have occurred to the spectator that the roof is depicted as very low, and the gangway or free thoroughfare behind the animals is exhibited as exceedingly narrow.

Now, creatures imprisoned in such a building are actually perishing of starvation! The food, the water, and the medical attendance may each of its kind be unexceptionable; but the animals housed in such a locality soon droop from positive inanition. To breathe, is the primary necessity of existence. There is no living thing that can thrive where air is excluded. The quadrupeds represented below have to pass twenty-two out of every twenty-four hours in a locality barely lofty enough for each to stand upright in. Let the reader, knowing the duration of captivity, conjecture how long it will be ere the huge lungs of a horse have inhaled and contaminated the limited amount of atmosphere which the place can contain, even were such an abode contemplated as the dwelling of a single subject.



BLISTERING A STABLEFUL OF OMNIBUS HORSES.

It is true, such sheds are seldom air tight. Were all draughts excluded, the prisoners would speedily be released from their captivity; but the wind holes, though large enough to prolong misery, are too small to render such places the abodes of health. The wretched inmates cannot be tortured into a show of activity. When will the legislature, in its wisdom, notice these hot-beds of contagion? When will it empower the police officer to enter any stable and authorize him to destroy the animals therein, hopelessly diseased and purposely concealed? Who can, viewing the stables where the hardest worked of the equine race are stowed away, wonder that glanders is rarely absent from such nurseries for contamination?

Horses have thus been housed, and have been physicked, fired, and blistered, for ages. The folly of such practices is continued even to the present hour. However, let the gentleman who keeps his stable filled take warning from the errors of his inferiors; and when the groom informs him that "Blossom" is getting stale upon her legs, refuse to have the creature tortured. A blister incapacitates a horse for six weeks. The cessation of toil for such a period may do good; but let the man who pretends to judge in this matter grant the holiday which the measures, if adopted, would occupy, and employ the time in looking jealously around his premises to ascertain wherefore his dumb servant flags!

Let no man blister a horse's legs. There is no motor agent situated in or near to those parts. The shin, foot, and pastern are almost without muscles. There is nothing, therefore, which could be freshened or rendered more brisk. But these parts are susceptible of the acutest agony. They are largely supplied with purely sensitive nerves. Consequently, let all gentlemen discharge the veterinary surgeon who proposes to blister the legs of their horses. He does so merely to gain time: the professional man is totally unworthy of confidence who can play with his employers' ignorance and tamper with his patients' sensations, merely from reasons of policy or the chance of pecuniary benefit to himself! The author has beheld hundreds of blisters applied to the legs, but he cannot remember the instance in which such applications were productive of the slightest good.

Blisters are seldom required, and are only beneficial as counter-irritants. Equine medicines are generally too coarse, and much too powerful. Some practitioners mingle euphorbium, corrosive sublimate, aqua fortis, etc. with the blistering agent, to increase its potency. Therefore, never procure the oil of cantharides from a veterinarian. Never use blistering ointment of any description. Stuffs of this last kind are, for the most part, made of the refuse flies, exhausted by having been used to form the oil of cantharides. Buy the oil of some respectable chemist. Add to this four times its bulk of olive oil; should it not blister after it has been once used, it may be rubbed in a second or a third time. Counter-irritation is certain to be thus secured, and vesication is only a sign which pleases the uneducated eye rather than benefits the animal.

Never employ any oil that is not perfectly clear. It should be filtered after it is made, and the slightest opacity is proof that some impurity is present. This direction is imperative; for, though the ingredients which compose the oil are not expensive, there is scarcely an article in the pharmacopœia more liable to adulteration. Let, therefore, the liquid

seem as transparent as that which is represented in the accompanying illustration.

A BOTTLE CONTAINING OIL OF CANTHARIDES.

It is a common custom with most veterinarians to purge the horse before they blister its legs. The intention is to remove any lurking irritability out of the animal's system; but such irritability will most probably be provoked by their coarse and potent blistering agents; therefore, a purgative, by increasing the debility, is only likely to render the quadruped more sensitive to outward impressions. A nice "freshener" is embodied, to the eye of reason, in a drastic purgative, followed by an active irritant applied to a most sensitive part of the body!

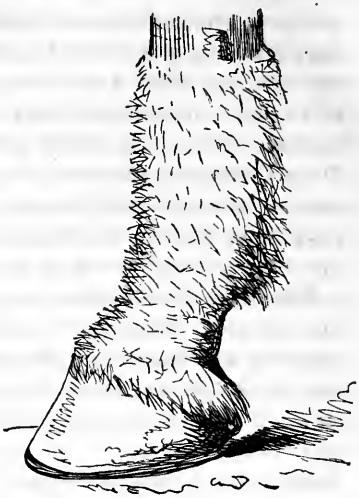
Whenever a blister is adopted, rather too little than too much oil should be used. Enough to permeate the hair and reach the skin is imperative; but the action rather depends on the amount of friction which accompanies the agent than on the quantity of the vesicatory that may be employed. The friction should be regulated by the condition of the surface on which the oil has to act, and all adjacent tender places, as the points of flexion in joints, parts where the skin is thin or is thrown into crevices, should be previously covered with a layer of simple cerate, after the method exemplified in the left-hand illustration on the next page, wherein the back of the pastern is exhibited as thus protected.

After the part has been rubbed for ten minutes in summer, and a quarter of an hour during winter, all oil may be wiped off the hair. Its presence there can do no good; but as oil becomes more liquid with the continuance of warmth, the heat of the body may cause the blistering agent to run on to parts which it is not desirable to subject to its action.

After the horse has been blistered, it is customary to tie up the head and put around the animal's neck a kind of rude apparatus denominated, but wherefore the author cannot tell, "a cradle." This last instrument is designed to prevent the creature from gnawing the blistered surface. No such act will, however, be indulged where the agent employed is proportioned to the sensitiveness of the quadruped; but it is the agony produced by the effect of undue stimulation which generates the mad-

ness that induces the wretched creature to use its formidable teeth in tearing its own flesh.

THE BACK OF THE PASTERN AND THE HEEL PROTECTED BY BEING COATED WITH A THICK LAYER OF SIMPLE CERATE.



A HORSE'S LEG AFTER THE APPLICATION OF A BLISTER.

About three days after the application of the blister, the surface will have become dry and incrusted with a solid exudation. It is well, at this period, to soften the part with some emollient liquid, and one can hardly be found better suited to this purpose than that known as **lead liniment.** It is made by mingling together one part of Goulard's lotion

A BRUSH FOR APPLYING LEAD LINIMENT TO THE LEG OF A HORSE WHICH HAS RECENTLY BEEN BLISTERED.

and two parts of olive oil, whereby is formed a thick creamy compound. The oil soothes the harshness of the exudation, while the lead serves to mitigate any pain which may reside in the part. This mixture, being well shaken, is applied to the surface by means of what cooks call "a paste brush."

The liniment usually causes the "crusts" to fall off; but the hair generally comes off at the same time, testifying the severe irritation to which the skin has been subjected.

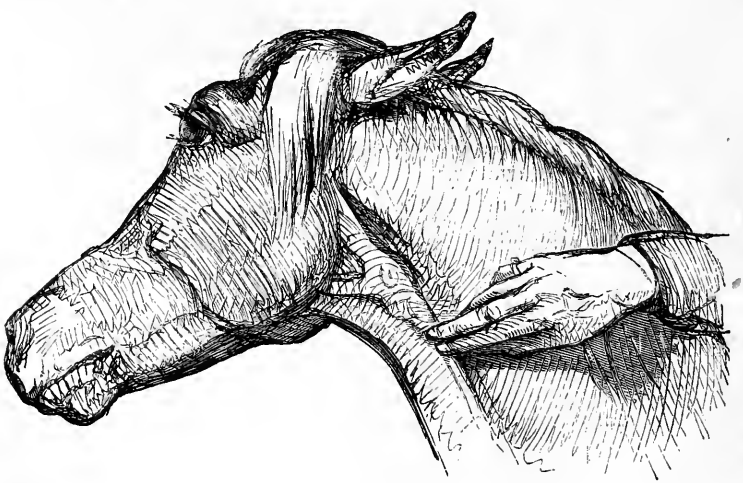
The most pliant medical individual—the pedantic man who always

acknowledges everything emanating from the schools to be correct—would, the author imagines, be puzzled to discover any necessary connection between the processes of **balling, blistering, firing,** and **bleeding**; yet somehow the four operations are associated in veterinary practice. A ball reduces the bodily activity; a bleeding lowers the action of vitality; irritants are thought to stimulate organs to which they are applied, but to lessen the general tonicity. An animal subjected to the first action appears fitted to dispense with the second; while the last two seem somewhat similar to the first. But there is no accounting for incongruities when men, deserting reason, consent to adopt routine as a guide in the treatment of so capricious a development as disease.

Bleeding.—To lose blood was once deemed a healthful custom by the human race. Then, horses were regularly depleted every rise and fall. An old practitioner can remember the period when, on a Sunday morning, he beheld long sheds full of agricultural quadrupeds waiting to be bled. The fleam used to be struck into the first horse; then the entire row were, in succession, similarly treated. The operator afterward returned, and, pinning up the wound which had been made in the neck of the first animal, again moved down the line, pinning as he went. No account was taken of the amount lost by each patient, nor was any pains thought needful to control the current that flowed upon the ground; but the creatures did not all suffer an equal depletion. The fleam was soon struck; to pin up, however, took a comparatively long time for its performance. The first horse of the group, therefore, lost but little blood; while the last of the line bled for a considerable period before its turn to be attended to arrived.

The foregoing anecdote will show how nice our fathers were in their operations; but it is sad when we reflect that all this carnage was a sacrifice made to a mistaken idea. Human medicine has abandoned the antiquated custom. Veterinary physic, however, is not quite so versatile; still many quiet spots in the country may be found where old physic is in force, both with the employers and the practitioner. Dogs, even in the metropolis, are sometimes bled; and there still exist persons who esteem the use of the lancet upon these animals to be a laudatory accomplishment. Cats were, formerly, operated upon; and the author knows an aged lady whose medical practice was confined to depleting grimalkins. There exist, even at the present enlightened period, few of the equine species which do not bear several scars, each testifying to a separate operation. Raise the jugular vein in the neck of any animal, by simply stopping the downward current that flows through the vessel; it is ten to one but numerous circular prominences will bulge forth, to denote the medical activity which has been lavished on the quadruped.

No matter what may be the age, the condition, or the occupation of the horse, certain practitioners always discover that the mute drudge requires depletion; thus, an unscrupulous man may at most times earn a ready shilling by performing an easy operation. Every kind of animal is liable to be so treated or so abused; and there are very few stables throughout this kingdom in which the sight of the fleam, blood stick, and can do not create the groom's delight. The strangest fact is, that most rural proprietors love to see the purple life drained from the necks of their possessions; and bitter are the reproaches usually lavished on the veterinarian should a horse perish of any disease without the fatal termination having been hastened by the favorite measure. Indeed so fully are several country practitioners aware of this probability, that it is customary with them, when alone, to strike the vein and to pin up the orifice immediately. The necessary sign can then be adduced, should death end the case; and a professional reputation be thereby saved from the assaults of aggravated stupidity.



RAISING THE JUGULAR VEIN.

To show the necessity of venesection in most forms of disease, the author must be pardoned if he intrudes upon the reader a portion of his own experience. Some years ago a medical man, then residing in Westbourne Terrace, kept a well-stocked stable. The family going out of town during the autumn, some of the animals, much against the author's opinion, were allowed a few weeks' "run at grass."

When the horses were taken up, none were found to have been bene-

fited; but one was discovered to be much worse for its period of liberty. It was very weak, and its constitution evidently was shaken, for nothing seemed capable of invigorating it. If put into harness and driven merely round to the street door, the body was sure to be white with perspiration, and the poor quadruped exhibited signs of exhaustion. If permitted to remain in the stable, the creature would generally be found with the head depressed, the corn untouched, the breathing audible, and the body leaning for support against the trevise.

The animal was in this state when the family again left London for a few weeks; the horse was taken with them by railroad. Before they quitted town, the author found occasion to speak with the proprietor. The writer said that, during the sojourn of the family in the country, it was probable the urgency of the symptoms would necessitate the calling in of a local veterinary surgeon; therefore the proprietor was warned that the ailing quadruped was on no account to be bled; for to deplete a life in so exhausted a condition was positive slaughter.

As the author had conjectured, so events literally happened. The symptoms suddenly became alarming. The attendance of the nearest veterinarian was requested. To him the warning given to the proprietor was repeated. The gentleman replied that the author had not seen the animal in its then serious state, or he could not have tendered such advice. Medical etiquette forbade positive injunctions. The operation was performed, and the family returned to town leaving a carcass behind them!

It is very seldom that the system of a horse, when doing full work, can endure depletion. The labor is exhausting, and the toil is sufficiently severe to employ it all had the animal twice its normal energy. Many observant stable-men are of opinion that, nurture as they may, the provender consumed cannot be equal to the work. There are, however, too many persons who study to underfeed, and who nevertheless are morally convinced that every quadruped in their keeping not only possesses a sufficiency of vigor, but can part with a gallon or two of blood, twice in every year, with positive advantage.

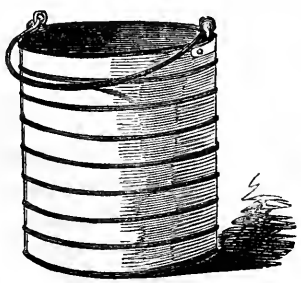
Here are two opposite convictions; and the cost of horse flesh to each party, could we inspect the private accounts, would certainly best settle the dispute. But as men mostly object to laying open their books to public investigation, we must, therefore, endeavor to decide this point by drawing inferences, after having submitted the lives of most quadrupeds to review. None, except the wealthy, keep horses, save for use. The feelings of men are seldom gratified by feeding idle animals. Two horses very commonly have to perform extra duty, while the master is looking about him and in no haste to purchase a third laborer. Rarely do we

find three animals are kept where the owner has full employment only for two of his slaves.

The horse, therefore, is generally worked to the limits of its strength. That there may be no doubt upon this matter, the person who has to judge of its capabilities is he who has an interest in the amount of an animal's exertions. The fact is, however, proved by the wonder excited when a quadruped is recorded to have reached the natural period of its existence. The great majority of horses in this country perish of exhaustion before their maturity has been attained. The sad reality, that of the numbers reared in England the great majority of humanity's humble, obedient, and willing slaves are goaded to early graves, before all their second teeth are up, and before the consolidation of their bones fits them to endure the strain of fatigue, too fearfully establishes the fate which beauty and submission receives at the hands of avarice.

Man is a hard task-master! He was so when the pyramids were raised; he is so still in the Southern States of America. There is something wrong in the creature who can thus abuse all that serve him. Had the horse twenty times its present strength, it would still be below the point of human requirement. It is a very painful occupation to look into a London street, and, having an understanding which can interpret equine significances, to observe the lame, the deformed, the starved, the overloaded, and the weary animals staggering along the thoroughfare, but to perceive none without the goad, to enforce exertion, flourished by its side. Yet the creatures thus used, unconscious of a holiday and worked through sickness or through suffering, are thought by some persons to possess such a redundancy of health that they can support or be benefited by the life's blood being drained, at stated periods, out of their wretched bodies!

Nevertheless it is possible a timely depletion may, upon certain occasions, save life. Neither the present reader nor the writer may witness so rare an occurrence; yet because of the possibility, every horseman should be equal to such an emergency. For the performance of so trivial an operation certain tools are imperatively necessary. The first among these is a **blood can** or a tin pail, which is generally divided, by indented lines, into eight equal sections. The receptacle being made to contain two gallons, each compartment, when filled, indicates a quart to have been withdrawn. Wretched horses

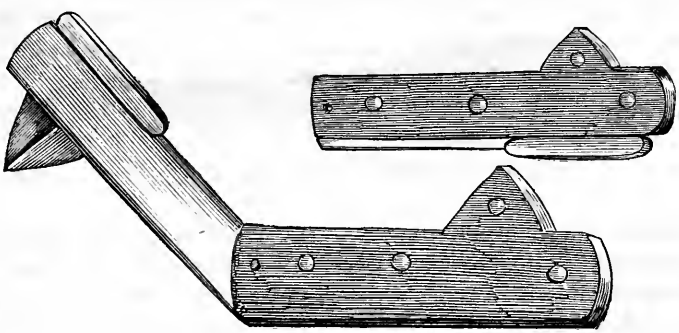


A BLOOD CAN, WHICH IS MARKED TO INDICATE WHEN A QUART OF FLUID HAS BEEN EXTRACTED.

have been drained to a greater extent even than two gallons; but should the reader possess a blood can, it is hoped that it will be indeed an extreme case in which he would behold the vessel once filled.

One or two quarts should be the limits of an ordinary venesection; but even that quantity may be of much more service, when aiding the circulation, than when withdrawn and permitted to coagulate apart from the body. Many practitioners, however, deplete without either excuse or justification. Having opened a vessel, they will allow the stream to flow until the poor horse staggers. Some are proud not to possess a blood can; but they hold up the stable pail to catch the vital current, and are quite content that the most ample drain of the system, conducted under their supervision, cannot be otherwise than restorative.

The next instrument requisite is a **fleam.** This article is much preferable to the lancet, though there exists a species of foppery among veterinary surgeons which tempts them to employ human implements.



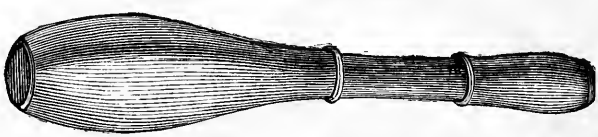
FLEAMS, OF THE NEWEST FORM, OPEN AND SHUT.

For that reason they flourish a lancet as the more scientific indicator. A lancet is, certainly, necessary to puncture the eye vein, which is visible upon the cheek of the horse; but as regards a vessel which is as large as a cart rope, for such is the dimensions of the animal's jugular, this last cannot demand the exhibition of vast scientific attainment to pierce it, or admit of the display of nice manipulation in him who operates on such a structure. For this reason the old-fashioned fleam is very much to be preferred. Assuredly it does not appear so pretty as the lancet; but it always cuts with certainty and leaves a limited orifice; whereas the more genteel blade has inflicted awkward gashes upon living flesh when the creature proved restless under its infliction.

The instrument with which the veterinarian extracts blood has been represented having the blade bared and having it closed. It is readily

admitted not to be of an inviting aspect; but it is not in reality quite so barbarous as it appears to the beholder. The point which projects from one side of the blade marks the extent of its cutting surface, and indicates the size of that puncture which the fleam can leave behind. It is more safe than the lancet, which, though of a more innocent aspect, has inflicted wounds of awful dimensions. For the last reason, the employment of the lancet by veterinary surgeons is not to be commended.

Above the cutting point of the fleam, and upon the opposite side of the blade, is seen what is intended to represent a bulging piece of metal. That indicates the place which the operator occasionally strikes with the side of his hand; its intention is to afford a blunt surface for delivery of the blow. It is advantageous to possess a fleam of the above form, because, under rare circumstances, the possibility for which it provides may be encountered; but for general use a blood stick is more instantaneous, and is more certain in its result; wherefore it is to be preferred to the human hand, as giving the smarter impetus to the blade.

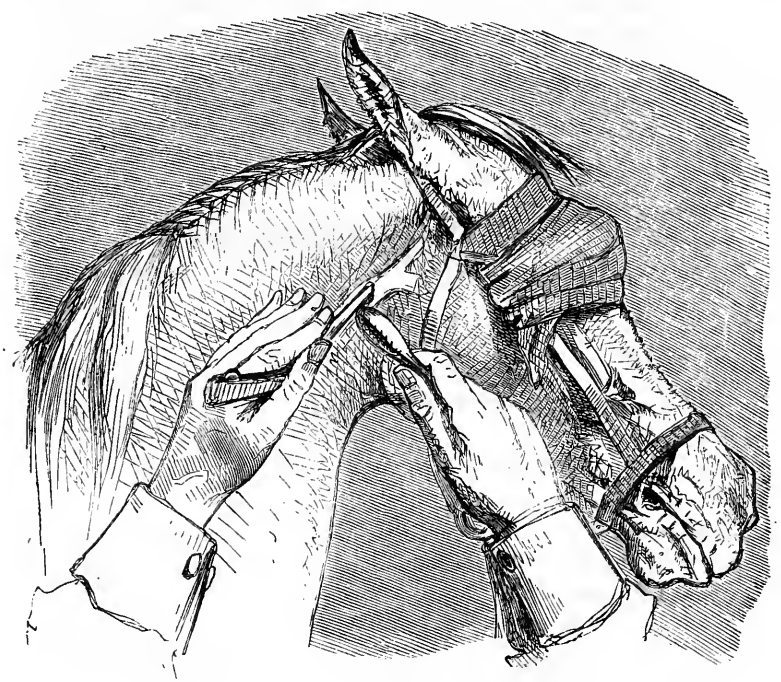


A BLOOD STICK, WHICH IS LOADED AT THE LARGER END.

A **blood stick** is merely a hard piece of wood, six or eight inches long, and turned in a lathe till it has assumed the above form. The larger end is then hollowed; the cavity is loaded with lead. Such a tool, though very diminutive, can be made to deal a heavy blow, and it is quite powerful enough to send the point of the fleam through the skin and thin layer of muscular fiber which externally cover the jugular vein.

However, before any attempt is made to bleed the horse, the animal's eyes should be bandaged. This should invariably be done before the fleam or blood stick are produced; as some quadrupeds show their intelligence by dreading the operation which most veterinary surgeons regard with complacency. Many persons doubt whether beasts are gifted with imagination; but it is not rare to encounter a steed which will stagger at the sight of a fleam, and when the blood stick and can are produced, will give every indication of approaching syncope. Consequently, if the reader is determined to have his horse depleted, let the eyes be disabled before any instrument is produced, more especially before the stick is attempted to be employed. Most animals, from natural timidity, shrink if they can discern when the blow is about to be delivered, and the point of the fleam is thereby frequently displaced.

The sight should first be obscured; then the vessel raised; afterward the fleam arranged upon the huge pipe thus brought into view; when a sudden blow being dealt with the blood stick will cause the current to spurt forth. Should any accident prevent the first attempt from being successful, the operator should not strike twice in the same place. Repeated blows upon the same spot are likely to bruise the part, or to cause a ragged wound; neither of which circumstances are favorable to the healing process. Leave the slight incision to nature, for it very rarely requires any treatment, and choosing a fresh mark, repeat the process with better success.

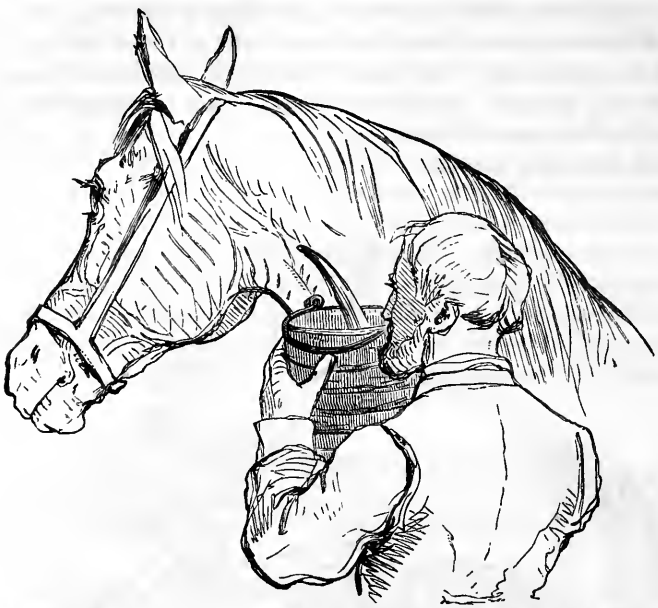


BLEEDING.

Blood being obtained by the operator, the groom approaches bearing the blood can. This the man presses against the horse's neck, thereby impeding the downward stream within the vessel and causing the vital current to gush forth.

Whatever may be the urgency of the business which may demand your presence elsewhere, never quit at this stage of the proceeding. However experienced or meritorious the servant may be, always remain until

the operation is concluded. These poor men invariably possess opinions of their own that are stronger because of the ignorance upon which such notions repose. The groom may have seen a gallon, or even two gal-



PRESSING THE BLOOD CAN AGAINST THE NECK, TO ARREST THE DOWNWARD CURRENT, AND TO CAUSE THE BLOOD TO FLOW FORTH.

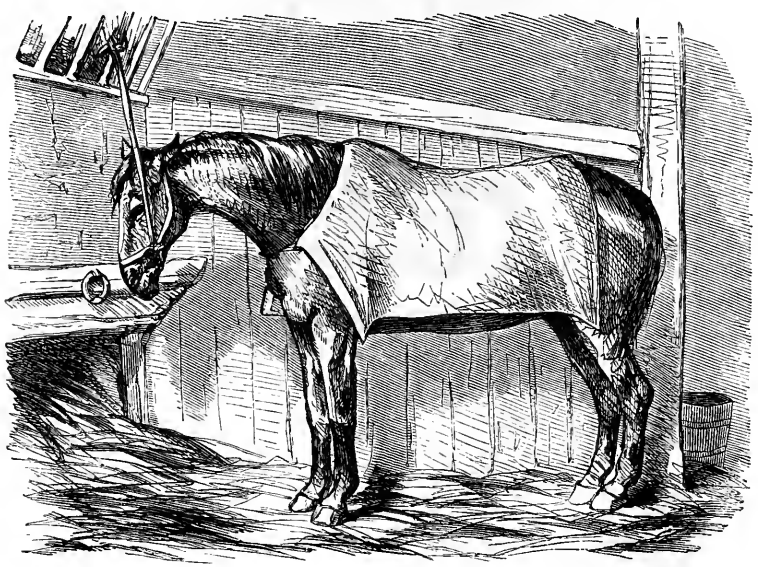
lons extracted, when in his last situation. Such people delight in strong measures; and he will sneer at the one or two quarts you may desire should be withdrawn. Be absent only for a brief space, and you may be certain your directions have been violated, although on your return the most solemn of faces should protest to the contrary.

TWISTED SUTURE.

When the quantity has been extracted, remove the pressure below the orifice and the outward stream will cease. Then proceed to pin up. Having rendered the point of a pin somewhat angular, by cutting off the tip, the wire will pierce the integument the more readily. Drive it through each side of the wound, and, being in this situation, twist, after the fashion of a figure of ∞, some tow or thread, or a hair pulled from the horse's tail, round its either extremity. Subsequently remove so much of the pin as may protrude, and the orifice will be closed by what surgeons denominate a **twisted suture.**

When performing this, a few precautions are imperative. In the first instance, the surfaces should not be brought immediately together. The wound should be left open until the lips become sticky, as when in that condition they unite the more readily. Next, when closing the orifice, all hairs should be removed, which is sometimes difficult should the integument have been torn asunder with a blunt fleam. The skin then is twisted and forced from its integrity; but if a sharp or proper instrument has been used, the presence of hair is never annoying; indeed it seldom requires attention.

The sides of the incision should be adjusted with all nicety, because, subsequently to bleeding, healing by the first intention, or by the speediest natural process, is desirable. Hairs, when present, prevent that union from being perfected. They irritate the part and act as minute setons, which provoke suppuration. The advent of the last action is always to be feared after a vein has been opened. The pus gravitates into the vessel and the blood becomes vitiated. The consequences frequently are fatal, and are always much to be lamented.



A HORSE, AFTER BEING BLED, HAS THE HEAD TIED TO THE MANGER FOR TWENTY-FOUR HOURS.

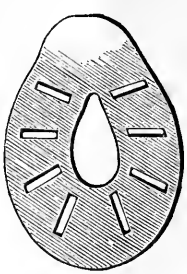
When the wound has been properly secured, all has not been accomplished. The rack and manger must be cleared. Food or drink must be withheld for twenty-four hours. The halter must be fastened up to

the bars of the hay rack; for the animal which has just been rendered faint by having its blood extracted must, for the tedious space of one entire day and night, neither feed, allay its thirst, nor repose its tottering limbs. Some certain benefit, substantiated by very potent proofs, are necessary to justify the measure which must be followed by such deprivation; for if lack of nutriment and want of rest can generate debility, what must be the effect of enforced abstinence, when ensuing upon a sickening depletion?

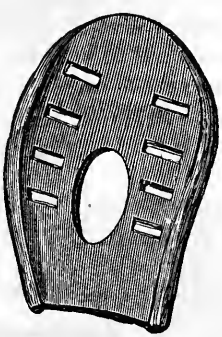
CHAPTER III.

SHOEING—ITS ORIGIN, ITS USES, AND ITS VARIETIES.

Shoeing a horse is understood to signify fastening a piece of iron to the horn which envelops the foot of the animal. Such an operation, at first glance, appears to be so simple an affair as to admit of few remarks; but there is no subject associated with veterinary science on which more research has been expended, about which more bitter discussion has been indulged, or with regard to which proprietors and practitioners are more at variance. Certainly no matter can possibly be more intimately connected with the sufferings and the comforts of the equine race.



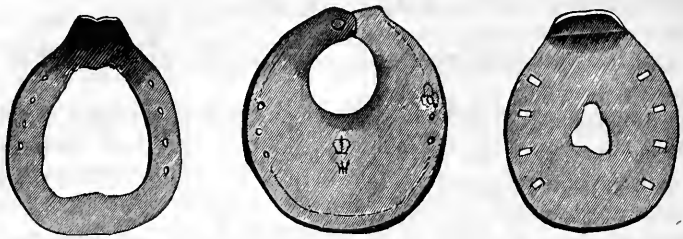
EARLY ARABIAN SHOE.



ARABIAN SHOE OF A MODERN DATE.

The custom of fixing iron to the hoof of the quadruped would seem, at the present moment, to be all but universal. This habit was probably derived from the East. In portions of the Desert of Arabia a primitive looking shoe is still employed, which, like most things in that region, has possibly remained unaltered during the passage of centuries. Such articles retain the impress of a by-gone era, being merely pieces of sheet-iron stamped, not forged, according to a particular pattern. The reader may be puzzled to form an accurate notion of such things; therefore illustrations, representing present and ancient shoes, are appended. Both partake of the same general characteristics, but, among a people so widely scattered as "the children of the Desert," doubtless numerous variations, as regards particulars, might be selected.

The preceding look like things produced during the childhood of civilization; but to assure the reader that at one period horse shoes resembling the foregoing were almost universal, below is subjoined sketches of those adopted, even at a recent date, by the Moorish, the Persian, and the Portuguese nations. These people are widely distrib-



A MOORISH, A PERSIAN, AND A PORTUGUESE SHOE. COPIED FROM GOODWIN'S SYSTEM OF SHOEING HORSES.

uted; but they all are characterized by the tenacity with which each has clung to the habits of its ancestors. The shape pervading the examples brought forward is too eccentric, the generic likeness is too remarkable, and the peculiarities of feature impressed on each is too conspicuous, to permit of their united evidence being pushed on one side with any commonplace reference to an accidental resemblance.

Succeeding the former engravings is appended an authentic sketch of the old English horse shoe which was in common use at the commencement of the last century. When compared with the plate of the Arab, which doubtless was the original, it assuredly exhibits signs of intention. The calkin, intended to prevent slipping, we here see, as likewise in the foregoing examples, is by no means a modern invention. The position of the nail holes has been materially altered: they have been moved from the center, and have been made to range around the outer margin and to pierce the solid horn of the toe, which previously was scrupulously spared. The fastenings, likewise, have increased in number, having grown from eight to fourteen. The central opening has been enlarged; but the thickness of the iron and the general figure, however, demonstrate the source whence the original was derived.

OLD ENGLISH SHOE. COPIED FROM CLARK'S WORK ON SHOEING.

Thin plates of iron were once nailed as shoes to the hoofs throughout

Great Britain. The breadth was not, perhaps, considered a decided disadvantage, when roads were few and much marshy soil had to be crossed in a day's journey. But if this peculiar form enabled a steed to walk more securely on a soft surface, the suction, inseparable from such land, must also have exposed the animal to the frequent loss of the appendage. When regarding these unavoidable results, we can perceive the reasons which have dictated all the subsequent alterations. The central opening had been enlarged, in the expectation of thereby counteracting the sucking effects attending the movements over a marshy country; while the nails had been increased in number, in the expectation of thus gaining additional security. The fastenings had likewise been ranged round the rim, so that these might be driven directly through the hardest part of, and have longer hold upon, the most resistant portion of the horn.

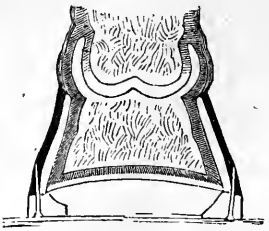
Such plates were at one time, no doubt, in general use throughout Great Britain; and illustrating whence they were derived, there may be adduced a well-known fact. The race-horse is of almost pure Eastern blood. The trainer's stable is a very conservative locality, into which changes slowly enter, and where names are retained long after their applicability has ceased. A thorough-bred is spoken of to this day as running in "plates;" although the contest is decided in shoes resembling those worn by other animals, only of lighter make and of the highest possible finish.

The aspect of the old English shoe evidently suggests a resort to the hammer; it also indicates that the introduction of regular roads had began to compel the employment of a closer and harder species of metal than heretofore had been esteemed necessary. No modern Nimrod dare, however, essay to career across the best-drained portion of country on a horse shod with such a shoe as that last represented. Before a second field were entered he would anticipate a steed with bare feet. No cabman, however reckless, would take a quadruped on to the rank shod in such a fashion. Were an article of this form brought out now, no one who knew anything of such matters would patronize the novelty. Nevertheless, though it be deficient in all present requirements, it displays certain features, which have been preserved by the smith and handed down from father to son until the supposed improvements have reached the existing generation.

The arrangement of the nails near to the outer edge, and the fixing of them into the hard outer wall of the crust, are methods still followed, though experience has demonstrated that such numerous bodies, driven almost perpendicularly into a thin and a brittle substance, were better calculated to break the hoof than likely to hold on that which it was their single office to retain. The modern smith, moreover, does not

generally puncture the toe of the foot; but the situations of the nail holes and the direction of the nails within such a part must have been originally regarded as a vast improvement upon the prevailing customs.

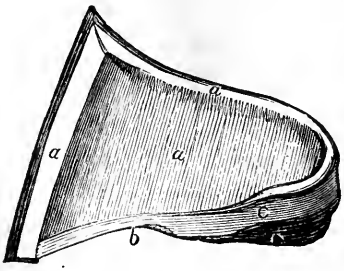
That which was formerly an innovation is, however, now the custom. No other mode of driving the nails is at present in general practice; though the modern veterinary surgeon recognizes all the evils which attend the habit, yet these evils he contentedly classes as diseases, instead of seeing in them the natural consequences of a faulty system.



THE PRESENT METHOD OF FASTENING THE ENGLISH HORSE SHOE ON TO THE HORSE'S FOOT.

In the sandy Desert of Arabia, where a flat and perfectly dry country rendered suction impossible, any degree of tension, however feeble, might serve to keep the horse's shoe in its situation. On such a soil, eight lateral fastenings—each no stronger than a stout wire—might afford all needful security. The size of the holes assures us of the bulk of the nail heads, the projection of which, probably, served to give security to the tread, as well as to retain the metal; being inserted at one end and driven with the hammer to the other extremity of the opening, they might be an ample provision for such a purpose, when the desert permitted no vast amount of wear, and the nature of the animal assured lightness of motion.

The English reader may feel disposed to sneer at the Asiatic manner of fastening the shoe upon the horse's hoof; but he will do well to inquire, "whether the modern method of attaining the same object is altogether free from objection?" To enable him to do this, it is necessary that the composition of the outer wall of the equine hoof should be explained.



DIAGRAM, ILLUSTRATIVE OF THE DIFFERENT KINDS OF HORN COMPOSING THE HORSE'S HOOF.

a a. The wall. The outer dark portion is called the crust of the wall, and the light-colored, soft, inner horn is thrown into the laminæ, or thin leaves, whereby it gains extent of attachment to its secreting membrane.
b. The light-colored and yielding horn of the sole.
c. The tinted but elastic horn of the frog.

The wall of the foot is so much horn as can be seen when the hoof rests upon the ground, and when it is viewed either immediately from the front or directly from the sides. This wall is supplied from two sources. The coronet, or the prominence to be seen immediately above the hoof, secretes the outer layer of horn, which is the darkest, is very much the hardest, and is the most brittle of all the constituents of the hoof. The

laminæ, or the highly-sensitive covering of the internal foot, secrete the inward layer of horn, which is soft, tough, and devoid of color.

These two opposite and distinct secretions are, by nature, joined together, forming one body. Now, the intimate union of opposite properties endues the substance, thus compounded, with the characteristics of both. The hard, outward horn was needed to protect the foot against those stones and rocks over which the animal was intended to journey. The internal, white horn, being fastened upon this substance, acted as a corrective to its harsh nature, preventing it from breaking, from splitting, and from chipping, which it else must have done under the weight it was destined to sustain, and when fulfilling the purposes to which the horse's foot was designed to be subjected.

Pathology has indirectly recognized the intention of this junction, by acknowledging that condition to be a state of disease, wherein the two

FALSE QUARTER, OR A DEFICIENCY OF THE OUTER WALL.

ONE ONLY POSSIBLE RELIEF FOR FALSE QUARTER.

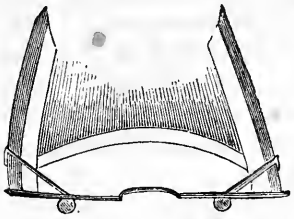
SECTION OF A HORSE'S FOOT AFFECTED WITH SEEDY TOE.

A FOOT WITH SANDCRACK.

kinds of horn are separated. Such a division is known as a seedy toe and as false quarter; and the foot is recognized as weakened when such a want of union is discovered. The outer, dark-colored horn becomes more brittle; the white, internal horn grows more soft for the want of that junction by means of which each communicated its attributes to the other. So also when the two descriptions of horn, although united, cease to influence one another, pathology acknowledges this condition as a morbid alteration, known as a changed state of hoof. Thus, when a sandcrack is visible, or the wall divides from the ground surface to the

coronet, the foot's incasement is recognized as unhealthy; but in the forge, the application of such facts is, by most smiths, utterly ignored.

The untutored Arab, however, takes advantage of the united properties of the horn. In warm countries the horse's hoof grows strong and thick. The uninstructed Asiatic allows the wall to descend half an inch below the sole, and right through the entire of this portion of projecting hoof he drives the nails which secure the shoe. Proceeding thus, he does not injure the foot by the insertion of foreign bodies through its more brittle substance, while he secures the united resistance and tough qualities of the complex covering of the foot.



THE MODE OF FASTENING THE ARABIAN SHOE TO THE HOOF OF THE HORSE.

FRACTURED CONDITION OF THE HORN, CONSEQUENT UPON DRIVING NAILS THROUGH THE BRITTLE OUTER CRUST OF THE WALL.

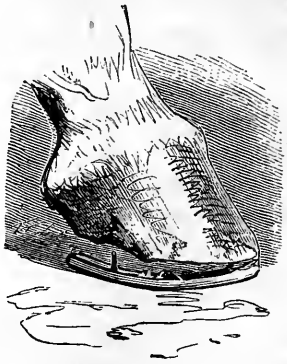
The English smith, on the contrary, by ranging the holes for the fastenings round the edge of the shoe, drives the nails only into the harder kind of horn, and transfixes the crust for a considerable distance. The English shoeing nail is meant to pierce only the black or outward substance of the wall. This may, seemingly, afford the better hold; but it also offers the more dangerous dependence. There is, likewise, the peril to be braved of pricking the sensitive foot, should the nail turn a little to one side—an accident which not unfrequently happens. There is, moreover, another danger, namely, that which the forge calls driving a nail "too fine;" that is, forcing it near the white horn rather than sending it directly through the center of the narrow dark crust. There remains to be enumerated a third peril. Horses, with thin walls, present difficulties to the shoeing smith. He is afraid of either pricking the foot or driving the nail "too fine;" should the last accident ensue, the nail will, upon the animal being worked, bulge inward, will provoke acute lameness, often causing pus to be generated. To avoid these evils, he points his nails outward; and, by so doing, not unseldom induces the harsh outer crust to crack, to split up, or to chip off. To such an extent

does this sometimes happen, that the smith is occasionally puzzled to find the place where a nail will hold.

It is a common thing to hear veterinary surgeons, throughout the length and breadth of the land, attribute to the operation of shoeing all the evils by which the hoof is affected. They generally assert that a colt invariably has an open, healthy foot, until it is shod; but, from the day upon which the animal enters the forge, the horn begins to be irregularly secreted, and the hoof to grow misshapen; while horsemen have a well-known saying, that "one horse could wear out four pair of feet."

Every rider knows how vexatious it is for a horse to fling a shoe. Every horseman appreciates the consequence of walking his steed, even one mile, along the common road, to gain the nearest forge, where the loss may be made good. Such an accident were an impossibility, if the nails were firm. There is always danger, as they are at present fixed, of these fastenings breaking away from the substance of the hoof; yet no one has hitherto ventured to question the existing method of shoeing prevalent throughout Europe.

But the worst evil which results from a shoe becoming partially released, is neither the inconvenience it occasions the rider, nor fracture, often produced, on the hoof of the animal. Some portion of the horn first yields. This mishap throws greater stress upon the remaining fastenings. The shoe becomes loose. The majority of the nails give way, but one may continue firm. This is the greatest peril. The shoe is fastened as by a pivot, and with every step swings from side to side. The released nails stick upward—the earth or roadway, as well as the clinches, preventing these from leaving their places. When the foot is in the air, the shoe hangs pendulous. When the foot is placed upon the ground, it may be impaled upon the nails that protrude upward. Many steps are seldom taken without such a result. The shoe gets under the foot. The blunt and jagged points are, by the huge weight of the quadruped, forced through the soft sole or frog at the bottom of the hoof; a dangerous wound is inflicted, the uneven metal being often driven for some distance into the body of the coffin-bone.

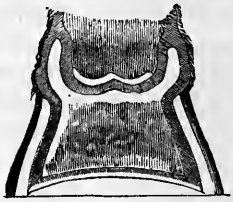


THE SHOE PARTIALLY BREAKS FROM THE INSECURE FASTENINGS, AND ONE OF THE NAILS, STICKING UP, PIERCES THE SOLE OF THE FOOT.

Against the Arabian method of driving the nails, it may be advanced

that if the equine hoof is permitted to grow, the elongation of the horn at the toe and its non-removal by the knife would occasion this portion of the foot to protrude, and ultimately curl upward like a Turkish slipper—such being the result of long-continued neglect, as is exemplified in the feet of too many donkeys.

THE NEGLECTED AND LONG UNSHOD HOOF OF AN ASS.



ENGLISH MODE OF PARING THE HORSE'S HOOF.

It is not proposed to subject the horse's foot to anything like the usage to which the hoof of the ass is habitually exposed. All the writer contemplates is moderating the smith's employment of the drawing-knife and of the rasp, enforcing some caution in the application of the red-hot iron, when burning a seat for the shoe. Why need the wall be always cut away till it is level with the horny sole? Why bring this last portion of the pedal covering, which is naturally soft and yielding, on a line with that part of the crust which is imbued with a power of resistance? Nay, the harder wall is protected by the shoe on which it rests; while the softer sole is brought near to the ground, being left exposed to an injury, which the lesion known as bruise of the sole proves not unfrequently to happen.

The sole, being exposed thus close to the earth, is the fruitful source of several "accidents." The soft horn of this region being brought so low, is rendered constantly wet. The consequence is a harshness of texture, perfectly opposed to the evident intent of nature. This harshness is one of the most common sources of corns. The edge of the sole rests upon the web of the shoe—the descent of the coffin-bone, being unable to play upon a yielding sole, squeezes the flesh between the inferior surface of the bone and the upper surface of the shoe. This is acknowledged as the principal source of corns. Stones and other rubbish often become impacted between the horny sole and the shoe. In this situation, the foreign substances are retained so firmly and provoke such acute lameness that it is common for all stable-men to keep by them, as well as it is general for most horsemen to carry, a curved tool

denominated "a picker." Such annoyances, with many others, might be easily avoided, could the English smith only be prevailed upon not to pare the sole so thin that blood bedews its surface, and then to make the level of the diminished part the point whereto the crust is to be lowered.

Another probable consequence, attending the customary cutting away of the horse's sole, has not been sufficiently considered.

The shape of this part, its yielding character, and its position immediately under the coffin-bone, all should be accepted as proofs that it is of service in supporting the weight of the body. It proves nothing to assert that if the sole is removed, the pedal bone will not fall down. The burden may repose upon the numerous laminæ and upon the bulging rim of the coronet, as well as drag upon the lateral cartilages. Here is sufficient material to uphold even a greater load; but can such a force be arbitrarily imposed by human authority without provoking nature's resentment? The parts here named are the very regions which are the common seats of foot disease. Ossified cartilages—irregular secretion of coronary horn and laminitis, in the acute or in the chronic form—are very common to stables; so also is navicular disease, which the trimming of the frog is also likely to induce. Horse proprietors, therefore, would do well to reflect upon the above possibility, when their property is again submitted to the unchecked abuses of the forge.

Humanity is not pleaded in this case. Human interest alone is urged in favor of the plan proposed. Every horse owner knows how common it is for the animal to return tender-footed from the forge. Every person can appreciate the unpleasant sensation experienced when a nail has been pared to the quick.

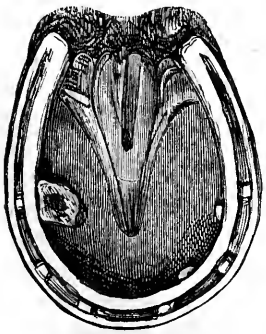
Immediate lameness, or violent exhibition of acute disease, is required to convince some people that dumb animals feel anything; but a peculiarity displayed in the manner of placing the foot on the earth is, to the author's mind, sufficient proof of some painful sensation. In two or three days, the newly-exposed horn may resume its protective function, and the mode of progressing, by such a time, is generally restored to its accustomed soundness. But such is not invariably the case, and, when it does happen, the seeds of future disaster may, nevertheless, have been sown. Indeed, so conscious are dealers of the injury done to the horse's foot by the rasp and the drawing-knife, that, as a rule, they avoid having their new stock reshod while these animals remain in their possession.

To rectify the foregoing evils, the author would humbly propose that half an inch of crust should be allowed to protrude below a sole of moderate thickness. That all idea of breadth of shoe affording the slightest protection be at once abolished; because the broad web has been proved,

by the general employment of the picker, rather to afford harbor to hurtful particles than to protect the sole from injury. That the shoe be made only just wide enough to afford bearing to the wall of the hoof, and to allow sufficient room for the nail holes to pierce the substance of the iron. The crust was designed to sustain the weight of the animal's body, and the most ignorant smith would not think of permitting the entire burden to bear upon the sole. A space large enough to give room for the nails and to provide an ample rest for the wall of the hoof is all that can be of use; and, being so, all additional width only renders the shoe of an unnecessary weight.

The use of the sole is well known to be distinct from directly supporting any portion of the body; but it may be of all service in upholding occasional weight. That other parts receive the primary burden, is illustrated in the forge every day—it being an ordinary custom with the smith to pare the sole of the foot till it yields readily to pressure from the man's thumb, or until blood oozes through every pore of the structure. A further proof of this is the custom of removing a portion of sole when the animal chances to be bled from the foot; also, by the veterinary surgeon, without hesitation or fear of consequence, taking away large pieces of the horn whenever the sole happens to be bruised and under-run. The function of the sole is to endue the tread with spring and elasticity; that it may perform its proper office, the removal of it from all possibility of hinderance to its freedom of motion becomes a necessity. This requirement is best complied with by allowing the part to remain so high as anticipates all possibility of its coming in contact with either the web of the shoe or the ground.

Nature makes nothing in vain; or, in other words, every part which she creates has its destined uses. To recognize such a maxim, and then to employ a smith to destroy the horny sole which nature provided, is to acknowledge wisdom, but to follow ignorance. At all events, putting every appeal to higher principles of action on one side, let mere cunning or let worldly prudence decide the point. The present method has been tried, and has lamentably failed; consequently it is proved an annoyance which countenances any feasible change.



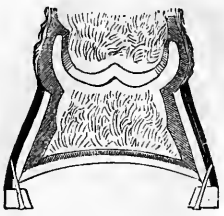
ILLUSTRATING HOW LARGE AND SMALL STONES BECOME IMPACTED BETWEEN THE SOLE AND THE WEB OF THE SHOE.

But those who are prejudiced in favor of the usual proceedings may exclaim against the annihilation of the web, and talk about the need of protecting the sole. The old English shoe (in which the

web was so broad the horse's foot rested on a flat metallic surface) did not defend the sole, else the web would not have been sacrificed. But what kind of protection does the present form actually afford? Why, its only use really appears to be that of affording a place of lodgment for gravel and for pebbles, or of a medium for the generation of corns.

Were half an inch of crust allowed to remain, the web and all its dangers might be abolished. The weight would thereby be lightened, while the tenacity of wet clay would be deprived of any leverage on which to act. Two primary requisites toward a good hunting shoe would then be obtained. The nail openings also being brought close to the inner margin, and the fastenings being driven in a direction slanting outward, a hold would be taken of both species of horn which unites to form the wall of the foot; and the nails, being firmly clinched upon a tough body in lieu of a brittle substance, would be retained with greater certainty. The weight of metal required for such a shoe would be decreased, thereby materially lessening the labor of the horse; while if the nails pierced the toe of the crust, a firmer hold would be obtained, and the quarters would be left free instead of being fettered, as is unavoidable so long as the present system of nailing is continued. Corns, bruise of the sole, brittle hoof, etc. would be avoided, and the dangers of the forge no longer perpetuated. Lastly, the comfort of the animal being more tenderly considered, the motions of the quadruped would be so much the easier, and the more pleasant—man's real interest being best consulted by strict attention to the happiness of all the lives which serve him, as every form of existence succumbs to protracted suffering.

The reader, however, may have experienced the deception which commonly attends every novelty in horse shoes. Therefore he may think, when the author proposes a return to an old, a barbarous, and an exploded form of fastening on the horse's shoe, he simply aims at trying an experiment with the living property of other people. The writer does not propose to contend against suspicions; but he produces the plan which he advocates, and contrasts it with the ordinary method of nailing; when, having placed the evidence before his judges, he leaves them to decide on the merits of the adverse modes, as regards their likelihood to perform the offices of retaining a ring of iron with safety and with advantage upon the foot of a horse.



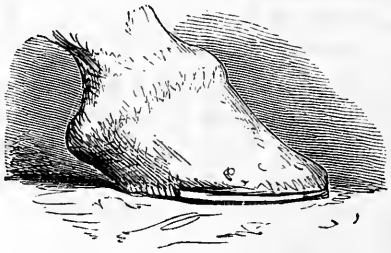
THE AUTHOR'S PROPOSED MODE OF NAILING.

According to the above plan, the hold would be much firmer; it would embrace the two kinds of horn which nature ordained should unite to form the wall of the hoof. The nail would pierce those tough

and resistant substances which were designed in their unity to support the animal's body, instead of being driven perpendicularly into the more brittle covering of the foot, thereby dividing the fibers and frequently injuring the hoof, by causing large flakes to chip off its protecting envelope.

The present practice of the forge chiefly consists in removing as much horn as possible: as if the covering of the foot were not a natural growth, sent for a healthful purpose; or it was the sprouting of disease, which it became imperative should be excised. The shoe is dragged off, and afterward the punch, the pliers, and the drawing-knife are employed.

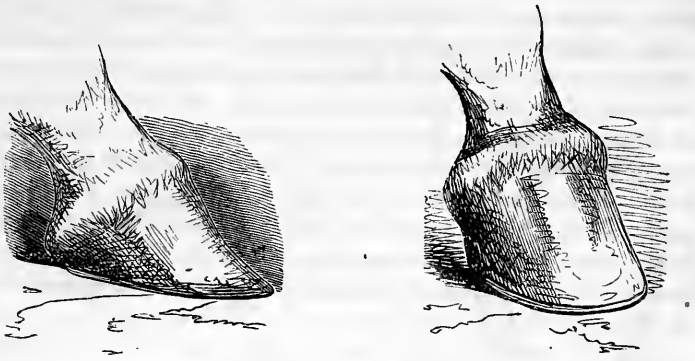
The author does not object to the legitimate use of the last-named instrument; but to its abuse he dissents. As the shoe alone rests upon the earth, of course the hoof lacks needful attrition. Therefore, were no cutting resorted to, the horn would be prolonged, and the shoe ultimately afford no protection to the foot, being carried forward by the growth of the toe. It is not unusual to see the iron, which originally was nailed to and encircled the hoof, borne onward by the continued development of the horny secretion, in consequence of neglect having allowed the shoe to remain on the foot for months.



THE SHOE, WHEN SUFFERED TO REMAIN UPON THE FOOT FOR TOO LONG A PERIOD, IS CARRIED FORWARD BY THE GROWTH OF HORN, AND LEAVES THE HEELS UNPROTECTED.

It is well known to physiologists, that the constant removal of any natural growth is calculated to result in one of three effects: it may stimulate production, causing the willfully-excised material to be secreted in unnatural abundance; or, on the other hand, it may interfere with the powers of growth and occasion the material to be withheld altogether; else the operation may cause the product to be secreted in a diminished quantity. These conditions of hoof are those which the English smith most often complains of, little suspecting that he may innocently have aggravated the very evil over which he so loudly laments. Weak, shelly feet are generally attributed to the colt having been bred upon marshy soil. This accepted reason may answer its purpose; but it does not explain why, upon the horse being taken into work, or being carried a

long distance from the place of its birth, the deficiency should become more conspicuous, and the weakness grow more annoying with each successive shoeing. Thick, stubborn hoofs are too common to need much comment; but this effect is generally attributed to the lateral nailing, which confines the expansion of the quarters. Does not this excuse suggest the wisdom of carrying the fastenings to the toe, where the greater thickness of the horn would afford better hold to the nails, while at the same time the amount of substance would forbid all idea of motion?

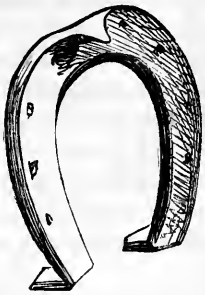


SPECIMENS OF A LOW AND OF A HIGH HEEL.

In reply to the above suggestion, it may be answered that English smiths like to spare the toe of the horse's foot. All the strain of draught is thrown upon this part, which must be dug forcibly into the earth whenever the load is heavy or is difficult to draw. In fast-trotting animals, the toe receives the impetus of the blow when the foot descends upon the ground; therefore, it is urged, the smith has found out by experience that no nail should weaken this portion of the hoof. The answer appears to be final, but, on consideration, it will be found of small value. Mr. Woodger, one of the best veterinary surgeons in London, informs the writer he prefers to drive nails through the toe of the horse's foot.

In the first place, the different methods of fastening on the shoe have to be properly considered. The author proposes a simple puncture through all the substance, which, as the opening made is filled with metal, can hardly produce weakness in the structure. The smith drives the nail perpendicularly, not through the wall of the hoof, but into its outward investing envelope, or into a material particularly harsh and resentful of interference—thus separating the fibers of the horn, destroying its integrity, and, of course, weakening its capability of sustaining violence.

But, bearing in mind the foregoing reply, supposed to be urged in defense of the established custom, let it now be asked, does the English smith really respect the part, about the integrity of which he appears to be so anxious? How does he act, when he fits upon the foot of a horse a shoe having a clip at the toe? Does he, then, scrupulously respect the most forward portion of the hoof? No! He actually employs his drawing-knife to cut away the horn, thus forming a bed or seat within which the clip can lie ensconced. Nor is this all; he turns up the heels of the shoe afterward, thus forming a calkin, and actually throwing the bearing of the hoof on that portion of the foot which he has just denuded of its natural protection.



A SHOE WITH A CLIP AT THE TOE.

THE INCISION WHICH PREPARES THE FOOT TO RECEIVE THE CLIP.

Against all objections embodying the cruelty of this mode of proceeding, it may be responded that the horn is not endowed with sensation; that it can be cut or burned without awakening the slightest feeling; and, therefore, the introduction of the present remark is entirely out of place. While listening to such talk, it might be inferred those processes which a few people speak of as exciting no feeling, were positively the sources of pleasure to the animal. But if shoeing is to the horse so perfectly painless an operation, what makes many of these quadrupeds dread its infliction, and refuse to enter the forge? Is it excess of happiness that occasions several of these creatures to resist the office of the smith, and provokes a few actually to struggle so violently to escape his attentions as to sacrifice their existences? Is it any form of ecstasy that renders most animals fidgety while being shod, or is it the restlessness of perfect bliss which induces nearly all to move about as though they were anxious to escape?

The horse is naturally docile and obedient. To serve man is its destiny, to obey its master is its delight. To please the human savage, it deforms a beautiful frame before it is matured; and, under the im-

pulse of fear, submits to usage which destroys the value of its life. In such a creature, which is denied the use of words, actions must be reasonably construed, if we desire to interpret its emotions. The acquiescence of ages has viewed contortion as the evidence of agony; and universal opinion has regarded nervous movements as being indicative of fear or of suffering.

The smith, to quiet timidity, may strike "the brute" with his heavy hammer, or with his scarcely lighter pincers. But no severity can deprive flesh of its inherent privilege to writhe, when tortured. Fearful injuries have resulted from the smith's impatience. Every blow, however, does not lead to an inquiry; though any animal, having a most retentive memory, may on the next occasion shy as it approaches the door of the forge; or it may ever after, with that strange perversity for which thoughtless proprietors are at a loss to account, prove resistful at the approach of the shoeing smith. Nevertheless, though the pantomime of terror should be a language universally comprehended, few of those most accustomed to horses can see anything in the nervous spasms of the animal but the exhibition of a vice which needs to be resisted! Such people will imagine they deserve to be commended when, by the exertion of their utmost force, they have overpowered the mute timidity which was endeavoring to appeal to the sympathy of its heartless superiors.

Calkins to the shoes of the horse, as at present made, are positive abominations. The shoe, in the first instance, is forged too long for the foot, when, the extra length of iron being bent downward, a calkin is established. Below, the author presents a sketch, made from memory, of the highest calkin he ever remembers to have looked upon. It was encountered in the country, soon after the breaking up of a severe frost; and, probably, it was intended to counteract the wear of metal which invariably accompanies a frozen condition of the highways. It would, however, with a change of weather, fail in its intent; for the principal wear is then endured by the toe of the shoe, and the heel comparatively escapes friction. All such things operate according to their height. They fling the entire bearing forward, where, without any such aid, it must strongly press. Although contraction of the tendons is mostly confined to cart horses, (and this constrained position of the foot must favor such an affection,) nevertheless the smith

A HIGH CALKIN.

may receive it as an unjust accusation when he is told that high calkins are to blame for the spread of such a state of disease.

The author, probably, has said enough about the evils attendant on the present system of shoeing; and, although the subject is far from exhausted, he yields to the reader's desire of learning what the writer would substitute in the place of that which causes the numerous evils he has denounced. The reformer's office is but half performed when the bad is exposed. The most difficult part remains to be discharged—that of conceiving and of declaring the good which shall fill the void left by the necessary destruction of the evil.

The author is conscious that, after having condemned so much, he has placed himself under an obligation to adduce that which he believes to be grounded on right principles. When doing this, the mighty question of expense is entirely ignored. It is his office to make known the remedy; he has no concern with the cost of its application. Gentlemen, however, though exacting the utmost service from the horse, generally begrudge the price of the iron which must be ground down while the patient quadruped is laboring for its task-master's benefit. With too many proprietors the cheapest is the best form of shoe. The temptation of saving a few pence frequently sways the judgment in favor of some particular article. The welfare and the life of earth's most beautiful ornament is, by too many human beings, reduced to a money consideration. So thoroughly is this fact appreciated that, when a new shoe is submitted to the notice of the forge, its chances of success are always judged by the charge for which it can be manufactured, apart from the merits of the invention.

There is, however, a custom general in the forge which has been discarded by other trades. The linen-draper tickets up the goods in which he deals; and, be the customer rich or poor, the price is known to both. The smith, however, will charge the tradesman three shillings and sixpence, or four shillings, the set, for a horse's shoes; while the person of independent property, or in the upper sphere of life, he makes pay five shillings for the self-same article. This rule can be based on no principle of fair dealing, and it needs only to be exposed to be immediately overthrown. Yet, even up to the present time, so exploded and so antiquated a rule of trade prevails in the forge, where the addition of an extra sixpence is unjustly made to turn the scale of merit.

However, the author has here nothing to do with such considerations. His duty is confined to freely stating his conscientious convictions, and to acknowledging the reader as the appointed judge of the soundness or unsoundness of his conclusions. Impressed with such a belief, the following form of shoe is submitted to the public. It is, by the writer,

designated "a slipper shoe;" and the appearance of such a protection, when fixed upon the foot of a heavy horse, is presented below.

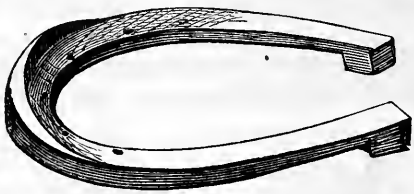
The principal peculiarity in this shoe is the long strip of metal which rises above the upper surface and conceals about three-quarters of an inch of the toe. This is not an enlarged kind of clip, but a hollow receptacle, which projects above the shoe and covers part of the hoof. The use will be best understood when stated that it confers the name—the slipper shoe. The toe is sheltered within the shallow cavity, and its purpose is to afford the stay which the clip imperfectly provides at the expense of the horn's destruction. When the fore portion of the foot is being dug into the earth, this provision, while it allows the hoof to be employed in its integrity, will prevent all the stress being transferred to the nails, and thus hinder the clinches being loosened.

THE FOOT OF A HEAVY ANIMAL, WITH THE SLIPPER SHOE FIXED ON IT.

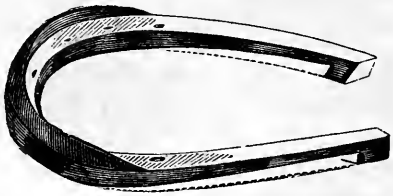
This shoe has no web. It consists of a piece of iron the breadth of which is merely sufficient to afford a secure lodgment for the crust. The thing possesses true calkins, but their existence does not interfere with the level of the upper surface on which the foot rests. The shoe is forged of one thickness from toe to heel; and a portion of metal under each quarter being removed, leaves the calkin, which thus only serves to maintain the evenness of the bearing. A slipper shoe, adapted for a lighter kind of animal than was supposed in the above illustration, and not fixed on the foot, is presented on the next page.

It may possibly be urged that in thus forming the calkin, the author

has weakened the strength of the quarters. Nature has, however, set the example, by weakening the horn at the quarters; nevertheless, by so doing she has not destroyed the strength of the hoof. The quarters of an old shoe, when removed after six weeks' hard wear, invariably are not sensibly diminished in substance, showing that the lessened amount of horn communicates small friction to the metal. Besides, the toe is supported upon massive iron, while the heels are upheld by blocks of the same metal. A law of mechanics instructs us that if the extremities of any powerful substance are adequately sustained, the body which bridges over the space may be without support. The heels being raised to an equal height with the toe, the metal left at the quarters, as it is removed from attrition, is imagined to be fully equal to the necessities of its position.



A HEAVY SHOE.



A LIGHT SHOE.—SHOWING THE MANNER IN WHICH CALKINS MAY BE FORMED, WITHOUT ANY INCREASE OF WEIGHT.

The diagram exhibits the Slipper Shoe, as suited for different breeds of animals; also shows the sameness in both kinds of manufacture.

Most existing shoes are **fullered,** or have a hollow space, narrow but long, near to the outer margin. Into this empty void or groove the heads of the nails are received; but as the substance in front is ground down by wear, of course the duration of the shoe must be shortened in proportion to the depth of the fullering. That the reader may fully comprehend the signification of a fullered shoe, on the following page is a copy, made from Mr. Goodwin's excellent work on Shoeing, which the author can recommend as the fullest, the most explicit, and altogether the best book on this topic which was ever written in the English language.

By inspecting the next illustration, which represents the ground surface, the reader will perceive an indented void near to the outer margin.

Behind this indentation or fullered cavity the iron gradually slopes away, so that the substance which is exposed to wear, and on which the horse must travel, consists of the narrow strip that extends round the outward edge of the shoe.

A SHOE, WITH THE NAILS COUNTERSUNK.
(Ground surface.)

A FULLERED SHOE.
(Ground surface.)

The author's proposed shoe contemplates iron of an equal thickness at every point which is usually exposed to wear. The nails are driven into

DIAGRAMS, SHOWING THE DIFFERENCE BETWEEN FULLERING AND COUNTERSINKING, FOR RECEIVING THE NAIL HEAD OF A HORSE'S SHOE.

Fullering, or a free indentation round the shoe. This space is indicated by the dark portion of the diagram, and within which the heads of the nails repose.

Countersinking, or only removing so much metal as may be filled up by the heads of the nails which are to retain the shoe upon the horse's foot.

holes made to fit close around the heads of those fastenings, so that the shoe being fixed, no loss of substance is to be detected; for the nail heads fill the spaces which were countersunk for their admission.

The nails pierce the toe of the proposed new shoe. This part is selected, because this portion of hoof is covered with the thicker horn; therefore is indicated as the region where all stress should bear. The author is aware that, among smiths, there is a strong objection to driving nails in the center of the wall. Yet it seems to the writer that a more violent outrage is inflicted by actually removing a portion of its substance, so as to make an abiding place for a clip, than by piercing obliquely the strongest part of the hoof, subsequent to the toe having grown below the true foot.

The thickness of wall there offers several advantages, when considering the retention of nails. The solidity of the secretion is a proof that this portion of the hoof is not endowed with motion. Consequently, when fastening a piece of iron to it, we are not fearful of interfering

with the exercise of a healthful function. Such would be the case if the nails were to fix the quarters, where the joint thinness, moisture, and elasticity of the horn afford the best evidence nature meant should reside expansion and contraction.

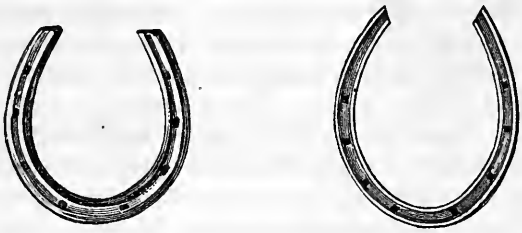
When the contents of the foot are compressed by the superimposed weight of the animal, or when the hoof is resting upon the ground, the quarters yield to the downward pressure, and they accordingly expand. When the burden is removed by the hoof being raised, the quarters again fly back to their original situations. The sides, therefore, being in constant motion, are entirely unsuited for the purposes to which the smith compels them. No wonder the clinches are loosened, or the shoes come off, when the nails are driven into parts hardly ever at rest; this action is important to the circulation, for the contraction still allows the arterial blood free ingress, while the expansion permits the full return of the venous current.

Therefore, because the thickness of horn denies the possibility of movement; because the amount of inorganic secretion likewise presents a reasonable hope of not injuring other and more delicate structures; and because the toe affords those numerous properties which, for the retention of the fastenings are rendered imperative, the nails, in opposition to the usage of ages and the experience of thousands, are fixed within the anterior of the hoof—seven or five being there employed to fix the shoe.

There is another quality appertaining to the proposed shoe which may be briefly touched upon. The thing is equally applicable to the field or to the road. For hunting purposes, it is superior to any modern shoe. It possesses no unnecessary surface, being absolutely without web, and is lighter for the absence of so useless a provision. It is also fixed more firmly upon the foot, being the better able to withstand the drag, always present, when riding in winter over stiff clays. Moreover, it does not fetter the quarters of the hoof or necessitate vast removal of the sole; consequently it leaves the pliable horn to aid the spring, thereby allowing the horse the full exercise of its natural power.

This reference to one kind of sport, naturally calls to mind another form of amusement in which the horse is a principal performer. Thorough-breds, before they start for the race, are shod in very light, but in equally thin shoes, of which the appended example may convey some idea. Now, thinness and lightness, where metal is concerned, are attainable only by the sacrifice of strength. The sad accidents which have occurred through using the present racing plates, and by these being broken, bent, or twisted, during the violence of the contention, ought to provoke their abolition.

Such accidents are, however, fortunately more rare than the substance of the shoe might lead most readers to suppose. Nevertheless, a greater injury is consummated by affixing a fetter, which prevents the elasticity of the quarters aiding the exertions of the animal, while, from its dimension, it can afford but little protection to the foot. How much the speed of the racer must be dependent upon that elasticity with which the quarters are endowed, may be judged of by any person who has ever visited a race-course and beheld the horses trot previous to the start. Who can have failed to notice the play of fetlock by which "the blood action" is characterized? Now, nature never forms one part an exception to the



AN OLD AND A MODERN RACING PLATE.

whole. She delights in harmony; consequently the spring which resides in the fetlock is positive evidence of the elasticity which belongs to the unfettered foot. But the bounding property, which the frog, sole, and quarters would naturally provide, the trainer counteracts, in order to impose a dangerous article, which is not a horse shoe, nor even a respectable substitute for one.

It is so formed, however, as to exercise the worst functions of the regular shoe. It is a fetter upon the foot, and firmly impales the quarters, thereby seriously crippling the animal and impeding the natural power. If any part of a thorough-bred's foot required metallic protection, it could only be the toe; for this part alone is employed during the horse's quickest pace. The other portions of the hoof touch the ground, when aiding the spring; but these are never used with that amount of energy which necessitates anything approaching artificial defense. Now, the plate and its nails check expansion; these also oppose that force of rebound residing in the hoof and in its various structures. The best horse must feel the bondage

A TIP OR HALF SHOE NAILED ONLY TO THE TOE, AND LEAVING BOTH THE QUARTERS FREE.

most The spring or rebound is to it of most value. But that function is destroyed. Many a fine animal has, doubtless, been condemned for having "no go in him," which, could it have exerted all its natural power, would have been declared winner of every race for which it was ever entered.

The late William Percivall, the respected author of Hippo-pathology, many years ago informed the author that he had long ridden a young horse about town with no greater protection to its forefeet than tips could afford. He showed the hoofs of the animal to the writer, and more open or better examples of the healthy horse's feet need not be desired. Why could not tips be employed by racers, instead of the present ridiculous pretense at a shoe? If any greater protection is imperative, or is thought to be needed, the shoe proposed by the author would give all security, while it left the pedal structures free to exercise their important uses. There can be no doubt as to the safety of tips; in which, if Mr. Percivall could for years take his quadruped through the streets of London, another animal might, surely, scamper over the well-kept turf of a race-course, where the heels merely touch the earth during the intervals of leaps, and then only for an instant.

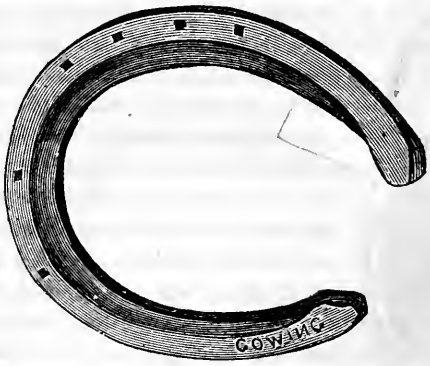
Were tips more generally employed, this form of shoe would be more highly valued. They are, however, now thought only to be of service when the animal is, "for a season," thrown up; but there can be no reason why the racer—trained, exercised, and worked always on choice turf—should ever be crippled by any more regular form of shoe. Most horsemen, however, like the warriors of old, place their great dependence on the accumulation of iron. The nearest approach they ever make toward a tip, and then only when guarded by a veterinary surgeon's advice, is a three-quarter shoe. The tip is a protection to be worn only during the run at grass, and to be discarded so soon as the stable is entered. Is not the racer always at grass, since the rail or the van generally carries it over the roads? How often do the feet of the thorough-bred fail, though there must be further cause than the work they have undergone? But no one is silly enough to suspect the shoeing can be at fault!

A THREE-QUARTER SHOE, WHICH ONLY LEAVES ONE-QUARTER UNPETTERED.

The three-quarter shoe is but an enlarged kind of tip. Most horsemen appreciate the unilateral nailing, which was revived some years ago by that excellent veterinary surgeon, Mr. Turner, of Regent Street. They can understand the advantages of leaving one-quarter without nails so

long as the unfettered part be covered by a regular shoe. They comprehend that by omitting the nails on one side of the hoof, that side is left free to exercise its natural property of expansion. Therefore they perceive that the unilateral mode of shoeing is a partial remedy for contraction.

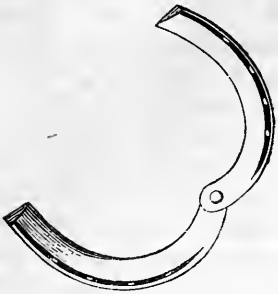
Though always worked on grass, and ever lightly shod, no animal is so troubled with mule hoofs as is the racer; yet no quadruped is so entirely under the inspection of man. The mode of shoeing must be at fault. That cannot be right the results from which are purely evil. The consequences experienced from the custom of fettering that portion of the foot on which the pleasure of motion and the extent of the rebound both depend, argue strongly in favor of tips, not only as training, but more especially as running shoes. Men with fleshy feet, having no protection from leather, fearlessly tread the race-course; yet the owners of blood stock seem afraid of trusting their animals to perform an act not equally bold—although nature sends the horse into the world with ready-made and stout-made shoes. There can be no just reason why the steed which never quits the turf need be hampered even with a unilateral shoe, were the horn only carefully, and not ruthlessly, cut away.



A SEATED AND A UNILATERAL SHOE.

A seated shoe implies a regular shoe, which has only so much upper surface left as will admit of the crust resting upon it. The remainder of the web slants away, till the posterior or inner margin becomes a comparatively fine edge. Such a make of shoe may lessen the weight, but it can afford no protection; while it offers a snug lodging for stones or grit, and presents an extended surface for the huntsman's dreaded heavy clay to act upon. Yet, for the sake of its prettiness, the seated shoe is all but universally adopted. No other form is so largely patronized by what should be the informed class of society.

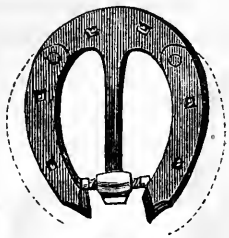
Mr Bracy Clark once brought forward a jointed shoe, which was intended to admit of expansion; and was offered to the public as a radical cure for all the evils to which the foot of the horse was liable.



MR. BRACY CLARK'S JOINTED SHOE.

The joint was placed at the toe, the shoe being forged in two halves, which were united by means of a rivet. The thing was wrong in principle. The toe, which nature intended should be fixed, was obliged to move, before the heels could expand; then, parts could not yield in different degrees, but all must move at once, according to the motion of the iron. It was soon discovered to be terribly injurious, when brought into use. The battering speedily fixed the central rivet, and afterward wore away the joint, leaving the two halves disunited. A thing which turns out defective, both in principle and in practice, merits that neglect into which the jointed shoe has now fallen.

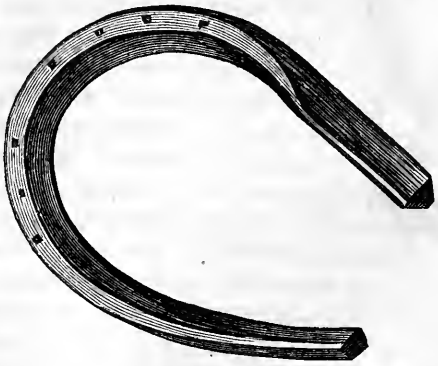
Another mechanical ameliorator was termed the screw shoe. This had two rivets—one on either side of the toe, operating on two movable quarter pieces. The sides, therefore, were capable of all motion, and, being nailed to the quarters, were, by turning the screw, to be forced outward. The screw was situated under the frog, and was retained in its position by a stout bar of iron connected with the toe piece. Man, however, cannot treat any portion of an organic frame as it were an inorganic substance. He may tear flesh, but he cannot stretch or strain living tissues according to his pleasure. Moreover, all outward secretions are regulated by the parts which they cover and inclose. Thus, supposing a lad born with a diminutive head, the cranium cannot be enlarged by any degree of force; but educate the boy, exercise the intellect of the youth, and, with the greater development of the brain, the bones of the head will sensibly expand. So it must be with the heels of the horse's feet. These parts may become rigid and wired in by the fixing power exercised by the nails of the shoe. But remove the nails, allow the hoof that motion which is needful to its health, and its internal structures may recover their lost functions; a gradual restoration to the normal shape may be the consequence of strength regained by the internal organs.



A SCREW SHOE.

The veterinary mind was, however, slow to recognize so plain a rule.

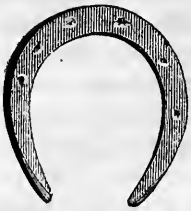
Like all nature's laws, the truth necessitated not that show of mastery in which the ignorant especially delight. The famous screw shoe is everywhere admitted to have been a decided failure; nevertheless, the pride of poor humanity could not relinquish the hope of compelling life through the power, to direct mechanical force. Screws and rivets had proved alike hurtful, but there still remained other artifices, which were as yet untried. The frog-pressure shoe was one of these, which ultimately lamed many horses, without having benefited a single one. The wedge-heeled shoe is, however, occasionally encountered, even at the present day. It consists of a shoe, imperfectly seated upon its upper surface, and which has the heels much thicker or higher than the toe. The iron, at the inside heel, is beaten into an angular form, the apex of the angle looking toward the foot. The intention is, that the heel, resting upon a slanting surface, should slide downward and outward, thus being forced gradually to expand. The shoe may be said, up to a particular point, to answer the inventor's expectations. The hoof certainly does slide downward and outward; only, when this is accomplished, the wall has been torn from its attachments, while the apex of the wedge, coming into contact with the soft sole, has actually forced its way through the horn covering the last-named part, thereby lamentably laming the poor horse. Could the teaching of principle have been interpreted, so sad a result might have been understood without positively experimenting with breathing life.



A WEDGE-HEELED SHOE.

But pride has no brains, and a very limited degree of feeling. A modification of the above shoe is still to be met in the London shops. The nail holes are principally at the toe, one only being inserted at the most forward part of each quarter. The author's proposed plan of fastening the shoe is, therefore, no positive novelty; since the smith, before

now, has impaled the toe of the foot. A return to perfect freedom, however, could alone cure the evils caused by unnatural restraint. The wedge heel pointed the toe toward the earth; injured the bars and the sole; often causing large portions of the coffin-bone to exfoliate. Seeing the plan did not answer, the next inventor lowered the heels and raised the forward part, this thing being named a "thin-heeled shoe." However, one extreme could not heal the wounds provoked by another; and the position of the hoof, which the pavement of the stalls enforces while the horse is in the stable, the thin-heeled shoe perpetuated whenever the animal was taken abroad. Ceaseless discomfort can advantage no form of existence.



A THIN-HEELED SHOE.

The last shoe, moreover, besides being thin at the heels, also displayed a mild desire to retain the feature of the wedge. This was done without the inventor suspecting that, when he fixed the quarters of the hoof at a high altitude, and invited the heels to slide down an inclined plane, he was only laying a trap for loosening the clinches; since, the quarters and the heels being continuous, one cannot move without the other being displaced.

All men having, theoretically, insisted on the necessity of permitted freedom of motion to the quarters, in order to secure the health of the foot, the next novelty was a proposition to confine those parts, by establishing a large clip at either side of the shoe. The clips were forged; but the thin heels were also retained. The highest portion being at the toe, of course the foot, obeying the laws of gravity, had an inclination to drag toward the lower level—thus the thin heels had a tendency to draw the hoof away from the clips, one part counteracting the other. Then, the clip shoe has a piece of steel inserted at the toe; but could an everlasting horse shoe be produced, it would bring but small gain to the proprietor; since the natural growth of the horn necessitates that the metal should be removed, that new nails should be inserted, and that the foot should be pared out every third week. However, the steel toe and the thin heels were incompatible with each other; since the thin heels took the bearing from that part which the steel presupposes to be alone liable to attrition.

A CLIP SHOE.

It would, however, be vain to review all the shoes which have come before the public. A certain rim of iron has been pinched up, flattened

out, squeezed in, twisted about, has been lengthened and has been shortened, subjected to every species of treatment but the right; and each trivial alteration has been patented to the public as a final and a wonderful improvement. After all the many changes, at the present time a modification of the shoe originally introduced by Clark, of Edinburgh, is in general use, or, if such an assertion requires any qualification, the hospital shoes, or shoes suited for particular forms of disease, are the principal exceptions.

The generality of grooms will undertake the relief of those injuries occasioned during motion, or which are produced by one leg being hit by the opposite foot.

Of cutting there are two descriptions. One is spoken of as "brushing," and this kind occurs near to the pastern joint. The other is called "speedy-cut," and it takes place immediately below the knee. Both are equally annoying; but the last is the most dangerous. "Speedy-cut" will destroy the rider's security in his horse; for a blow on the seat of injury may bring the animal suddenly to earth. Both affections are likely to occasion exostosis; for the repeated injury may so irritate the bone as shall cause it to enlarge or tumefy. Thus, the renewal of the accident produces a result which must increase the probability of its recurrence.

Almost all weakly, long-legged, and narrow-chested horses cut. Creatures with cow hocks are said to be exposed to this calamity. Many young horses strike in going; but they lose the habit as age matures the strength. Nearly all animals, when exhausted, will "brush," and often very severely. Lately, a ring of India-rubber has been employed as a protection against this annoyance; but it is a mere fantasy, and one not at all calculated to realize any practical expectation. Confirmed disappointment engenders a feeling allied to desperation; but when nostrums fail, advice should then be sought from more lofty counselors.

The speedy-cut has already been alluded to in the Illustrated Horse Doctor; but in that volume no mention was made of what is ordinarily implied by "brushing," which is confined principally to the hind extremities. It is astonishing how great may be the annoyance which a matter apparently so trivial will occasion; and it is a legitimate source of surprise how deep the wound can be, or how lasting the blemish, produced by slight blows, frequently becomes. The groom may exhaust his stock of remedies, and the master may expend some money and much patience, watching for a cure which is never effected.

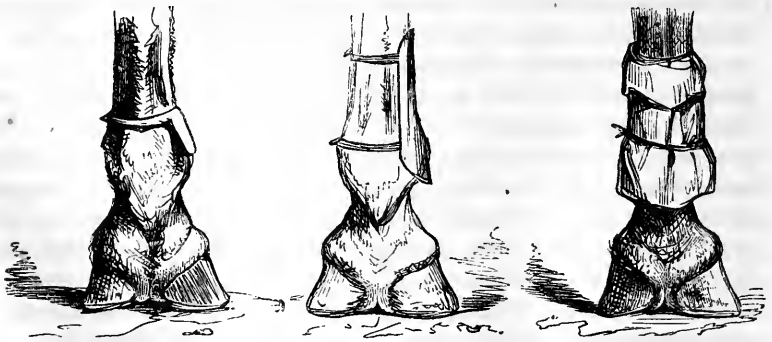
Let the defeated proprietor then apply to some practical veterinary surgeon, who will inform him of the real cause of the injury which has

already been intimated. Some horses will only cut during the latter portion of a long journey, or when thoroughly exhausted. Other quadrupeds are afflicted with a chronic description of weakness, and such animals may cut with the first step. These creatures require less work or entire rest, with a course of tonics, both in food and medicine.

However, make and shape certainly have some control over this affection. The horse which exhibits a wide chest, and stands with the feet not too close together, very rarely speedy-cuts. The animal which possesses well-made haunches with prominent hips and swelling thighs, that appear full, round, and fleshy, especially when such a creature places the fetlocks under the hocks, must be driven very far and pushed very hard before the pace shall become injurious.

THE KIND OF HORSE NOT LIKELY TO CUT.

Several repeated remedies have been sold for the relief of this defect. Saddlers keep in stock pieces of leather, or small flaps with straps appended, which last, being buckled round the leg, hang pendulous, covering the wound. Such applications, however, rarely are satisfactory. The horse, during the motion of the feet, repeatedly kicks the leather,

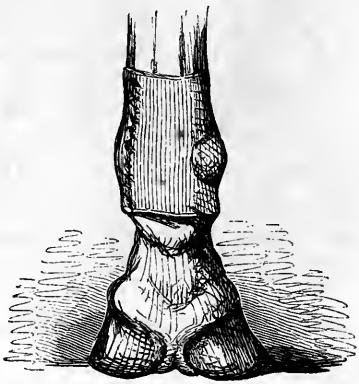


REMEDIES FOR CUTTING.

and the frequent blows generally remove it from its original situation; thus, long before the journey has ended, the remedy hangs over some sound part of the leg, and the sore is bleeding from renewed injury.

A better plan is to procure a piece of cloth which matches the color of the animal, and to fold this round the leg, ultimately tying it at the top and the bottom. Such a contrivance cannot be displaced, and is less likely to attract attention than the leathern flap recently alluded to. However, it must be tightly wrapped round the shin or it will bag and appear unsightly, as it is represented in the previous illustration. Still, such a resort affords but a partial protection, cloth being unable to stay the entire consequences of a blow; nor can it be regarded as exercising a curative influence.

That which appears better is a leathern boot, of the color of the skin, or made of prepared horse skin, having the hair on, and laced upon the member. Over the seat of injury a concave piece of stout leather is let into the covering, and the hollow thus formed, which acts as a protection, can also receive a portion of lint saturated in the lotion, prepared by adding one grain of chloride of zinc to an ounce of water. Thus, while the sore is spared a renewal of the cause, curative treatment is not stayed.

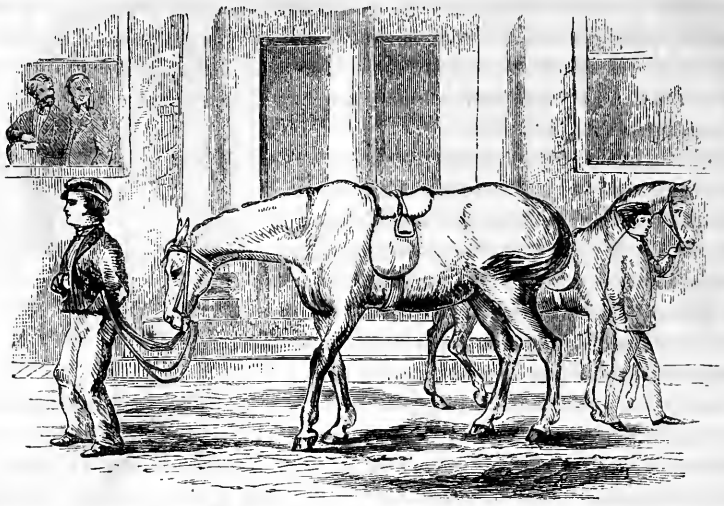


A LEATHERN BOOT.

The chloride of zinc lotion is the only remedy which an ordinary case of cutting would require; but aggravated instances of this annoyance will also be benefited by rest and a course of restoratives to amend the constitutional debility. Other matters consist in a warm lodging, an ample bed, prepared food, walking exercise, a loose box, and, above all things, no work. Should the animal be changing its coat, which is generally a period of weakness, throw it up till the operation is completed; give extra nourishment and one ounce of liquor arsenicalis, each day, to assist nature. Never turn out to grass; for numerous are the examples of flagging quadrupeds which, after the supposed invigoration of a month's "run," have been taken up in a condition which disabled them for labor ever afterward.

Such an animal should enjoy the very best of softened food—beans in excess—and should be retained at the homestead. It should be handled, not ridden, to exercise, of which it can hardly have too much, provided the motion does not excite perspiration or cause evident fatigue, neither of which states is desirable. Should the horse sweat in the stable, remove all clothing, open the door, and pour over the body several

pails of the coldest water—having a helper ready to dry the saturated coat with all speed; then, putting on a bridle, send the animal out for one hour's brisk walking exercise. Order the man who holds the rein to



THE RIGHT AND THE WRONG WAY OF WALKING A GENTLEMAN'S HORSE.

walk at the rate of four miles an hour. An active quadruped can travel much faster, so there can be no excuse, beyond the indulgence of his individual laziness, for the servant creeping along, while the animal hangs the head as though it had some intention of laying down.

Much injury is done every year by the indolent manner in which idle lads "walk horses." The urchins who infest the streets of London display nimbleness while they run by the side of an equestrian, shouting out occasionally, "Hold your honor's horse?" No sooner, however, have they received orders to walk the quadruped about, than all their activity departs; they creep along at a pace which only just renders it impossible to charge them with standing positively stationary. The horse may be warm, and the master may desire to prevent the body from chilling while he is detained by business. A ready affirmative testifies that the command to move briskly has been comprehended; but who ever beheld one of these youthful idlers, when in possession of a job, stirring even at the pace of a lady's ordinary walk?

However, to return to the subject which at present is more especially under the reader's consideration. *Cutting* is often combined with clicking or forging, for both words signify the same act, implying the noise

made by striking the toe or quarter of the hind shoe against the metal nailed to the forefoot. This sound is not generally considered pleasant by those who hear it; because, besides being of a monotonous character, it announces something to be the matter—either that the horse is not exactly in proper working condition, or that the journey has been a trifle too long for the strength of the animal, while the repeated blows endanger the retention of a fore shoe.

SHOE, DESIGNED WITH THE INTENTION OF ERADICATING CUTTING, AND OF RENDERING CLICKING AN IMPOSSIBILITY.

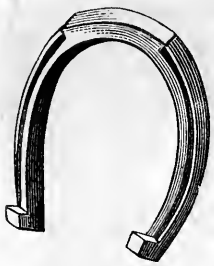
The smith generally is consulted to cure this defect. He, however, who regards the cause, will perceive that the eradication of the evil more concerns the stable than the forge. The man of the anvil, nevertheless, will put on a novel kind of shoe which, with all the confidence of ignorance, he shall assert must stay the annoyance. The remedy totally fails, and the horse is led to another forge. The new blacksmith picks up the foot, and, of course, is cunning enough to profit by what he there perceives. A different shoe is tried and pronounced an absolute remedy. Still, this disappoints; the quadruped seeks some other shoemaker. The next bit of iron leads to no new result. The clicking and the cutting only get worse during these numerous trials; till the proprietor becomes alarmed, and the horse is thrown up to undergo regular curative treatment.

The rest thus obtained often effects that which no change of shoe could accomplish. The smiths, however, are only to be blamed for pretending to perform impossibilities. The best veterinary surgeons in the kingdom having no better appliances, could have labored to no better result; the fact being that the kind of shoe which shall answer in all such cases, does not and cannot exist. That article has the best chance which is adopted when the owner deems it necessary to lighten the work of his exhausted servant. Thus, it is a matter of uncertainty which shoe will succeed. The first smith may, or perhaps the last will, prove the very clever tradesman in his employers' estimation.

The next engraving is a type of the shoe commonly employed for the alleviation of this unpleasantness. The number of altered shapes and adapted peculiarities is infinite; but one pervading model is readily detected through all such modifications. There are, however, several shoes claimed as inventions by different smiths, and each is warranted to cure the most aggravated case of cutting or of clicking on the first application. The author has known many of these to fail; while the ordinary

shoe often answers admirably, so the horse be "up." to his work, and not pushed too far or too hard.

The fact being, that flesh and blood, if overtasked, will flag, and no mechanical contrivance can anticipate the natural consequences of such exhaustion. Clicking and cutting are not local ailments; therefore, though they may be mitigated, they cannot be eradicated by any local application. They doubtless are both produced by the irregular movement of the feet; but the motion of the extremities is regulated by the condition of the body. If the reader is ever on a journey, and the horse he is guiding chances to click, the bearing-rein should be let down—if the driver sit behind harness disgraced by such an instrument of folly. Should that not succeed, accept the warning: pull up at the next tavern, and have the quadruped taken from the shafts, rubbed down and rested.



SHOE, MEANT TO PREVENT CLICKING.

After a couple of hours spent by the traveler in the coffee-room, the journey may be resumed, though, of course, a longer stay will rather benefit than injure the steed; yet, in either case, the subsequent pace should be a little slackened; and if, on reaching home, the work is slightly lightened, the noise may never after startle the "ear of propriety."

These remedies should always anticipate the setting in of winter; because wet roads necessitate heavier shoes, by which a severer blow can be inflicted. Nevertheless, the majority of horse owners are extremely careless about the necessities of the seasons. The winters, in this climate, are more generally characterized by their severity than remarkable for their mildness; yet the frost appears always to take horse proprietors by surprise. Gentlemen, to be sure, during this season allow their dumb servants to remain within the stable; but quadrupeds which have to work for their own and their masters' sustenance, creatures which have to labor long and to labor hard, slaves which toil before the sun has risen and never cease till darkness has long set in, are never prepared for the season which in England seems a certainty.

A horse shoe is, however, not a perishable commodity, nor does its store necessitate any sacrifice. Supposing it were forged in the summer, and because of death or change, it should not suit in the winter, the smith, at such a period, would gladly accept its return. Many forges are comparatively idle during the warmer months, and any amount of winter shoes would be most thankfully manufactured. Then no one will employ

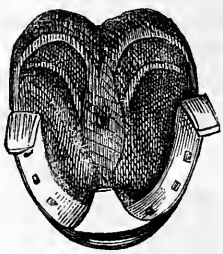
the men; but scarcely does a severe frost or the snow set in, than people throng into the forge, all clamorous to have their horses' shoes suited to the weather. They crowd the building; they even stop the roadway. The inside is full of men and horses—horses and men cluster deep about the entrance. The smiths have to work fast, and often hang over the fires for three nights and three days, without looking on a bed. Beer is abundant; but nature cannot labor continuously on any amount of stimulant, and the men ultimately sink, exhausted, to sleep soundly on a heap of old rusty horse shoes, while many voices are shouting and many anvils are ringing around them.

THE BLACKSMITH'S FORGE AT THE COMMENCEMENT OF A HARD FROST.

Such scenes might be prevented and the work much better done, would owners lay in a stock of shoes, properly frosted, against the coming winter. The labor executed during the leisure portion of the year would not be hastily performed by overtaxed workmen; the only extra charge such a provision would necessitate is the interest on the slight cost of the articles supplied: though very often even such an increase of expense would be avoided, since it is by no means uncommon for the smith's account to remain longer than six months before it is liquidated; while the confusion, loss of time, and those accidents which often occur, would be banished.

Frosting or roughing, as it is termed, is generally performed in a

coarse and careless manner, because of that excessive press of business amid which it is executed. In the first place, the shoe is hurriedly torn from the hoof, without the nails being properly unclinched, or any trouble being taken about the process. Should the proprietor expostulate, he only elicits an uncivil reply; for the journeyman is vexed with boisterous solicitations from a crowd of impatient customers, and irritable from inordinate fatigue. The shoe is then heated; after which the free extremities are turned downward with the hammer, and the ends are hastily beaten into a rude, sharp edge. In some particular cases, the toe is likewise favored by having a clip forged; but occasionally the toe is turned downward, forming a third and a front calkin. The article is thus rendered too short for the foot, and, with all shape destroyed, is nailed on to the hoof from which it was recently removed; and the animal is led from the forge wearing shoes supposed to be properly "frosted."



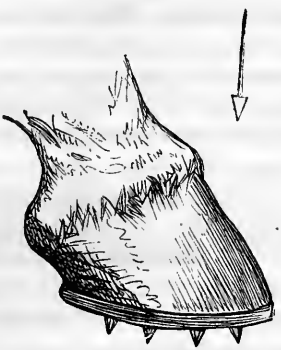
THE SHOE OF THE HORSE AS FREQUENTLY FROSTED.

The rudeness of the above process has long been appreciated by the more reflective portion of the public. To rectify it, various innovations have been proposed. The meditated improvements, however, have all sank into disuse, because of the attendant expense or of the necessitated exertion. A common man thinks it no trouble to remain through the night in the blacksmith's forge, waiting for his turn, at an expensive, a ruinous, and an inefficient operation,—because other people do the same. But when his turn arrives, perhaps a new set of shoes is spoiled; for the ordinary "roughing" is generally of no service after the third day, the sharp calkins being by that time ground blunt.

The huge weight of the animal grinds the edges off the iron, especially upon London stones, so that in three days they are no better than ordinary calkins, and cease to enable the quadruped to progress on ice. The constant removal and renewal of the shoe—the horn each time having to be repierced by fresh nails—seriously injures the hoof, so that frequently animals are forced to remain idle because there remains no more horn on which to fix a fastening. Those horses which escape such a fate, nevertheless carry the scars which commemorate the period of frost for months afterward; for there is no horseman, who has the most trivial experience in such matters, but will bitterly complain of the damage done to the quadruped's feet, when it is forced to work through the winter season.

Some person, many years ago, proposed to use nails with large steel sharp-pointed heads, during the prevalence of frost. This plan was

tried, and signally failed. The constant renewal of the nails was found ruinous to the hoof; for the strongest of the projecting heads was unable to resist the grinding action of a horse's foot longer than twenty-four hours. Then, many of the heads broke off while being driven, and not a few were fixed in a damaged condition, owing to the blows received from the heavy hammer of the smith.



A SHOE, INTENDED TO ENABLE A HORSE TO WORK IN FROST, WHICH IS FIXED ON TO THE FOOT WITH SHARP HEADED AND PROJECTING NAILS.

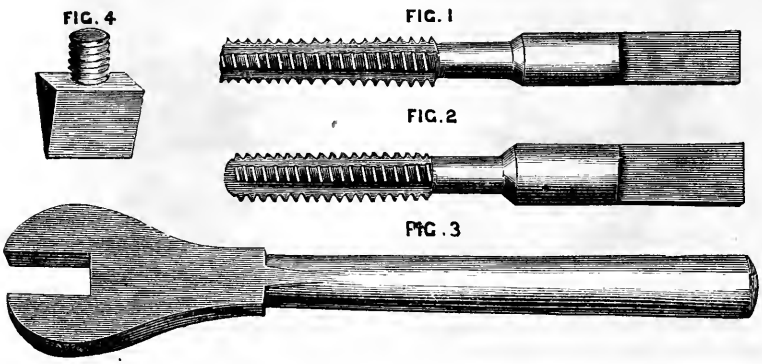
A SHOE, WITH POINTS, WHICH SCREW ON AND OFF, DESIGNED TO FIT A HORSE FOR WORK DURING FROSTY WEATHER.

Mr. White, however, proposed a plan concerning the utility of which Mr. Lupton, a living and a most intelligent writer, bears favorable evidence. Large holes, containing the thread of a female screw, are made through the heels of the winter shoes, and several steel points, manufactured with a male screw, adapted to the dimensions of the holes just mentioned. Whenever frost coats the roads with ice, all that is requisite a boy might perform. The hole in the shoe has to be cleared out, and afterward, with an instrument known as "a spanner," one of the points, before alluded to, is screwed into the opening. When these points are worn down, they are easily renewed; thus the terrors of the frost are overcome without exposing the horse for hours to the chilly air, or yourself submitting to the incivilities of the forge.

On the above subject, the following is extracted from the excellent weekly newspaper *The Field*, and is here quoted because of the information it affords, and because of the lucid manner in which it explains the measures necessary to be pursued.

"About this time last season we inserted in *The Field* an account of the plan of frosting horse shoes, recommended more than fifty years ago by Mr. White, veterinary surgeon, of Exeter. Since then, nearly one thousand sets of the sharp cogs used for this purpose have been sold by

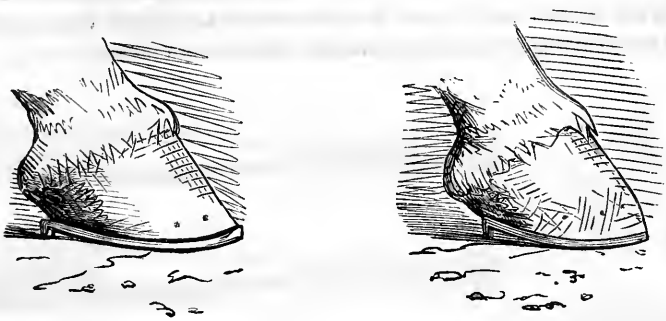
the engineer to whom we intrusted the task of making them; and the plan appears to give unqualified satisfaction. At the suggestion of several correspondents who have not seen our former article, we are induced to repeat the notice, with the addition of an engraving representing the tools necessary; these being a drill of the required size, which every smith possesses, and with which a hole is drilled in the heel of each shoe, and, if needed, in the toe also. These holes are then converted into female screws by means of two taps, (figs. 1 and 2,) one



being slightly smaller than the other, so as to make a perfect female screw by using first the smaller one and then the larger. Besides these, a spanner (fig. 3) is required to fix on the cog firmly; and the cogs themselves (fig. 4) should be made by a competent smith. These may all be obtained of S. Morris, 50 Rathbone Place, Oxford Street, London, the price of the tools being six shillings, and of the cogs, three shillings per dozen. With this outlay, any shoeing smith can fit a set of shoes by drilling the heels, (and the toes, if the roads are very slippery, but for ordinary work the cogs in the heels are quite sufficient,) tapping them with the taps furnished to him, after which they are nailed on; and the horse so shod can in five minutes be roughed by his groom, by screwing a cog in each hole, with the aid of the spanner. It often happens that the roads become frozen after a horse leaves home; but if the groom has the spanner and cogs in his pocket, he is independent of the smith, and neither the delay caused by 'roughing,' nor the danger from its omission, is incurred. A specimen shoe, properly fitted, may be seen at the office of *The Field*."—*December* 20, 1861.

The plan is excellent, but it requires a little forethought and a slight expenditure of ready cash. The tools for the tapping, or making the female screw holes, and for the points, Mr. Lupton obtains from Bir-

mingham; the former at a cost of five shillings—the last for one penny or three half pence each. Tapping a set of shoes is by the smith charged fourpence; and for so small an outlay the gentleman just named escapes the unpleasantness and the annoyance which are inseparable from the old method of "roughing" horses during frosty weather.



A FOOT PROPERLY SHOD, AND A FOOT WHICH HAS BEEN CRUELLY RASPED, TO MAKE THE HOOF SUIT A SHOE THAT WAS TOO SMALL FOR IT.

The author believes he has now touched upon all the *necessary* heads connected with the subject he is at present considering; still this article cannot be closed without apprising the reader of a practice not unusual in some forges, but never indulged in by the respectable tradesman. This is, paring and rasping the horse's foot till it be small enough to fit the shoe, rather than kindle a fire and forge a new set which shall suit the feet of the animal. It may to some readers seem like a jest, to write seriously about the horse's shoes being too tight; but it is, indeed, no joke to the quadruped which has to move in such articles. The walk is strange, as though the poor creature were trying to progress, but could obtain no bearing for its tread. The legs are all abroad, and the hoofs no sooner touch the ground than they are snatched up again. The head is carried high, and the countenance denotes suffering. It is months before the horn is restored to its normal condition. The animal must, during this period, remain idle in the stable; and, that the reader may be enabled to recognize the foot, under such circumstances, the last illustration was introduced.

It is trusted that whoever may possess an animal which is thus treated, will, in the first instance, secure the evidence as to fact from three or four of the principal veterinary surgeons; then enforce, with its utmost rigor, the law against the individual who has knowingly been guilty of this most heartless attempt at a positive fraud.

The horse is so entirely given into the hands of man, and is so sub-

missive to his treatment, that the active supervision of its master is doubly necessary for its protection. While the present mode of nailing is continued, every proprietor willfully exposes his quadruped to danger who sends the creature to be shod. Any journeyman may, therefore, be pardoned if, occasionally, the foot be pricked; but the pains and the labor required to adjust a hoof to a shoe of small dimensions are absolute proof of evil design, and are irrefutable testimony which should forbid the remotest thought of leniency toward the offender.

CHAPTER IV.

THE TEETH—THEIR NATURAL GROWTH, AND THE ABUSES TO WHICH THEY ARE LIABLE.

"No legs, no horse," is, with a particular class, a very familiar phrase. This assertion, becoming a maxim, has apparently directed attention in a special manner to the lower extremities. All purchasers are particular about the legs and feet of an animal; but the teeth are merely glanced at, to ascertain the age. Such a custom is evidently wrong; since it would be as true of the organs of mastication as it is concerning those of locomotion should the horsemen also say, "No teeth, no horse." For the creature that is valuable only on account of its labor, cannot be equal to its toil if it do not consume a fitting quantity of sustenance. Though the majority combine, as it were, to pass the teeth over without notice when inspecting the horse, nevertheless many owners seem to appreciate the value of these organs to the welfare of the quadruped, it being not uncommon to hear horse proprietors complain, "the beast cannot eat sufficient for the demand which is daily made upon its capabilities."

The animal was sent on this earth provided with every apparatus necessary to crop, to comminute, and to digest the green verdure of the earth. Man has seized on and domesticated the body, which is exquisitely adapted only for special purposes. He works it while in its infancy, or forces it to labor until the sight is lost and the limbs are crippled. To fit the creature for his uses, he changes the character of its food. Artificially-prepared oats and hay, with various condiments, are used to stimulate the spirit. No one inquires whether such a diet is the fitting support of the animal. But when the energy lags, beans, beer, etc. are resorted to as restoratives for exhaustion. The quadruped, thus treated, men have agreed shall be aged by the eighth year; but the author has seen very old horses which had not attained the fifth birthday. Opinion seems to be based upon the circumstance that, by the time recognized as "aged" in the equine species, the indications of the teeth do no more than tempt a guess. The cessation of dental growth, however, does not announce maturity to be consummated; but man appeals to the teeth as corroborative of his judgment, without asking

himself whether those parts have been doomed to unnatural wear, and therefore may not have assumed an unnatural aspect.

The author has not lately seen a specimen of **bishoped teeth.** In Ireland, such sights obtrude themselves at every horse fair. The majority of horses are, in that country, sold cheap, most of the purchasers being clothed in rags. It is a sad feature in the practices of imposition, that it is always violently rampant where there is the least certainty of reward.

To fully explain in what bishoping consists, it is necessary to inform the reader that on the nipping or cutting surfaces of the young horse's front teeth there mostly are dark indentations or deep hollows. Below is presented an enlarged engraving of this portion of a tooth, taken from the head of that which was a three-year old colt. The dark spot in the middle of the diagram represents the situation of the hollow into which the food naturally falls, rendering the interior of the cavity of a deep color approaching to blackness. Bishoping supposes the cavity always to be present; invariably to be of one form, and in every instance to sink to the like depth, which suppositions are contrary to fact; but even were such rules observed by nature, there are still means by which the cheat may be detected. Immediately around the dark-colored space is developed a fine line of enamel, which is always white. The rogues can counterfeit the black mark, but they cannot imitate the crystalline white bordering which surrounds the opening. The presence or absence of this is of more importance, therefore, than the existence of a black indentation. Again, those who tamper with the teeth cannot change the shape of the surface on which they work. The young tooth is wide from side to side, and narrow from the front to the backward margin. He who ventures where bishoped horses are to be found, should familiarize his eye with the shape of the youthful organ.

THREE YEARS OLD. TWELVE YEARS OLD.

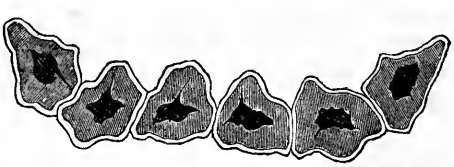
An enlarged view of the difference in form and in aspect which separates the table of a twelve-year old bishoped nipper from the same part in the three year old colt.

In contrast with the natural tooth, the reader is also presented with an exaggerated sketch taken from an organ which had been tampered with, and which was extracted from the head of an animal that had at

least attained its twelfth year. The natural size has been considerably enlarged, as the author thereby hoped to render the contrast the more obvious. This last member, it will be remarked, has parted with its juvenile width, or is now characterized by depth and angularity. The central cavity, it will also be observed, bears small resemblance to the natural depression which it is meant to imitate. The color, moreover, is quite black, and of an even tint throughout, while the presence of the girding line of enamel cannot be detected.

The difference, however, is more striking, when two full rows of teeth are placed in contrast one with the other, after the manner in which they are displayed in the next engraving. In the young mouth, the incisors are arranged in a gracefully curved line; the posterior margins of the organ present little peculiarity. In the aged teeth, the prominent center of these has retracted, while all idea of grace in the order of their disposal has departed. Each member in the old jaw evinces an inclination to become equally prominent, and the posterior borders evince an obvious angularity.

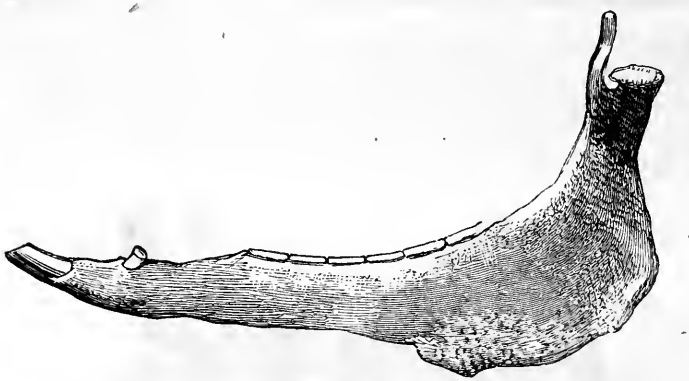
DIAGRAM, SHOWING THE TABLES OF A NATURAL ROW OF FIVE-YEAR OLD TEETH.



THE TABLES OF THE BISHOPED TEETH WHICH BELONG TO AN ANIMAL SIXTEEN YEARS OLD.

Then, if the marks in each are examined, the central cavities in the bishoped have jagged edges; while from these indentations arise certain eccentric lines, which invariably run toward the circumference. Such lines evidently were not made with any design. They were caused either by the inaptness of the operator, the coarseness of the tool with which he worked, or they were provoked by the natural struggles of the animal that was subjected to a merciless operation. The marks, moreover, are of a deep-black color; while the lines are remarkable for sometimes being of a lighter hue than the surface on which they repose.

There are, however, other signs which faithfully denote the age of the quadruped. The permanent incisors, when first cut, are almost perpendicular; but as years accumulate, these organs assume a more horizontal direction. The tushes also, when they first appear in the mouth, point forward. These members, after a time, become straight; but as age progresses, they ultimately lean decidedly outward and at length incline backward. Besides these well-marked indications, from the disposition of the front nippers to arrange themselves in a line, only two can be seen in old quadrupeds when the mouth is viewed from the side; while the membrane covering the gums altogether loses its fleshy hue, becoming evidently thick, yellow, loose and baggy.

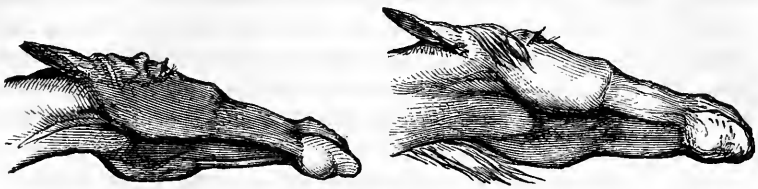


THE JAW OF A HORSE WHICH WAS THIRTY YEARS OF AGE.

Such marked signs may, by many persons, be esteemed sufficient protection; but there are yet additional characteristics with which all who venture to purchase horses of unknown sellers should be acquainted. The general indications of senility are strongly impressed both upon man and upon horse; though the teeth are usually appealed to, the appearance of the mouth should not be absolutely and solely regarded. A white horse is rarely young, any more than a white-haired man is, as a rule, in the possession of youth. Then, as the juvenile period ceases, absorption begins to operate. Deposit no longer takes place; but with senility a rapid wasting ensues; both bones and flesh suffer under this new action.

The branches of the colt's lower jaw are wide apart, and in the cavity thus formed the tongue reposes. This space is called the "channel." The lower margins, also, of the inferior maxillæ are in the colt full, round, and prominent. When age is present, the edges retract, the channel narrows, while the lower margins of the bones appear to the

fingers of the examiner, accustomed to handle young horses, to be positively sharp.



A YOUNG HORSE. AN OLD HORSE.

Comparative difference in the channels or in the spaces between the branches of the lower jaws.

When a person having a horse to sell talks boastfully of all "the marks" being present in the mouth, avoid him as a suspicious individual. Honest men know, or at least all honest men should by this time be aware, that there is no dependence to be placed in these so-called "marks;" therefore they do not strive to direct attention toward fallacious indications.

SHOWING THE HORSE'S TEETH.

By simply parting the lips of the animal, a judge can see everything which he cares to behold. The kind of teeth present are easily recognized; or when such signs declare the animal to be aged, the position of the teeth, the condition of the bones, and the general aspect enable him to guess as to a probability. Therefore, when a gentleman requests to see the mouth, the horse dealer, unless specially commanded to do so, no longer endeavors to tug the jaws asunder, a proceeding which, when conducted hastily, is apt to provoke resistance; but the groom is ordered to merely separate the lips, a measure to which most animals will complacently submit.

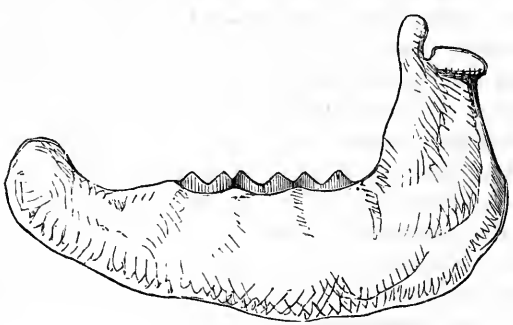
Should the person to whom the teeth are exhibited, by an evident lack of recognition declare his ignorance of their announcement, the honest dealer may slyly quiz his patron's want of knowledge; but assuredly he will not endeavor to take advantage of it. The author of the present volume has found the dealers in horse flesh to be quite as honest as, if not more honest than, traders in less perishable commodities. There are certain blackguards who profess to be dealers in horses, but who have no fixed place of abode or of business. So also there are scamps who style themselves traveling jewelers and itinerant booksellers; but the transactions of neither class of rogues (he whose stock in trade consists of a whip, or they whose most valuable possession is the mahogany box or the specimen number which is carried from house to house) can be taken as evidence against the more respectable members of the calling to which all will assume to belong. A gentleman, ignorant of any acquaintance with jockey-ship, can walk with perfect safety into the yard of any respectable dealer; look at the animals which are for sale, and walk out again, without encountering any undue solicitation to purchase. How many shops are there in London, in which a person, equally uninformed, could perform the like manœuvre?

When this is written, it is not meant to imply that a horse dealer keeps all his stock open to public inspection. On the contrary, in most respectable yards there are certain snuggeries which conceal the more choice articles. The pick of these are not even open to every purchaser who can pay the price. No! Horse and picture dealers are alike in one characteristic trait: each has a pride in the article he sells. The first individual will allow his dinner to grow cold, while he remains gloating over the points and beauties of some fresh acquisition. "How it would look carrying Her Majesty!" The image amuses his fancy! "What a spanker to hold a first place in the Beaufort hunt!" He warms with the idea! "What a charger it would make for Cambridge at a Hyde Park Review!" He is in ecstasies at the thought! He cannot possibly decide what so much perfection is fit for. He can never consent to treat such loveliness as a mere chattel,—a thing to be sold and then to be enveloped in obscurity. The animal must not be parted with to any unknown individual! The feeling common to his order forbids him to exhibit the object of his pride to general inspection. But he might dispose of it, even at a sacrifice, were he convinced it would occupy such a position as he esteems it is fitted to adorn. He then could point to the animal and vaunt that it came from his yard. Honor, fame, and profit must accrue to him who could refer to such exalted dealings;—therefore there is a strong sense of self lurking under that which at first glance appears to be mere Quixotic denial of self.

At the same time, if all respectable dealers are above positive imposition, it is not every dealer who will prevent a self-conceited novice from imposing upon himself. Such a person, acting upon his own judgment, may be allowed to purchase the worst screw which some yard contains, at the money that should procure a first-rate animal. Even then, the dealer has an escape, which every form of worldly honesty will not provide. The quadruped, if not approved of, can be exchanged within the fortnight following the transaction. To be sure, such exchanges generally advantage only one party: but a tradesman must live; he cannot be expected to waste hours showing his stock and chattering with fools for no business purpose!

However, to protect the reader from every chance of imposition, so far as the age of the horse may be concerned, let him attentively accompany the author through the following pages; let him also particularly notice the engravings with which the text is illustrated.

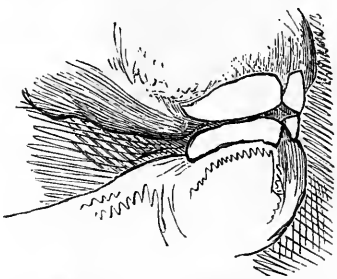
A foal at birth has three molars or grinding teeth, just through the gums, upon both sides of the upper and of the lower jaws. The little animal, however, generally displays no incisors or front teeth; but the gums are inflamed and evidently upon the eve of bursting. The molars or grinders are, as yet, unflattened or have not been rendered smooth by attrition. The lower jaw, moreover, when the inferior margin is felt, appears to be very thick, blunt, and round.



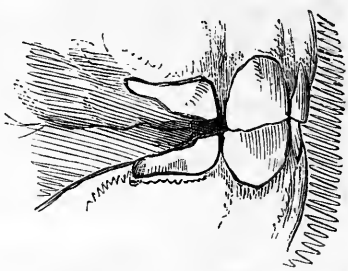
THE FOAL'S JAW AT BIRTH.

A fortnight has rarely elapsed before the membrane ruptures, and two pairs of front, very white teeth begin to appear in the mouth. At first, these new members look disproportionately large to their tiny abiding-place; and when contrasted with the reddened gums at their base, they have that pretty, pearly aspect which is the common characteristic of the milk teeth in most animals. They must occasion pain to the foal at this period: the appearance of the little mouth affords sufficient evidence

of that fact; but it is astonishing how meekly these beautiful creatures will submit to our examinations of their teeth,—as though they came into the world possessed of all confidence in man's intentions and with every dependence upon his sympathy. Some of the diminutive strangers seem even to derive pleasure from their irritable gums being inspected. They behave almost as though they recognized their future master and felt flattered by his notice. Alas! that brutality should ever repel the trustfulness of nature, and that experience should instruct most of our mute fellow-beings to regard mankind as enemies.



THE INCISORS AT TWO WEEKS OLD.



THE INCISORS AT SIX WEEKS OLD.

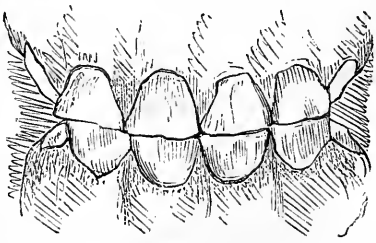
It is not until another month has passed, or until the foal is six weeks old, that more teeth appear. By that time, much of the swelling present on the gums of the newly-born animal has softened down, though all trace of it cannot be said to have entirely departed. The membrane, as time progresses, will have to resign much of its scarlet hue. In the brief period, however, which has elapsed since the former teeth were gazed at, the growth has been such that the sense of very disproportionate size no longer remains. The two front teeth are now fully up, and these appear almost of proportions suited to the mouth which they adorn. But when the two pairs of lateral incisors first make their appearance, it is in such a shape as can imply no assurance of their future form. They resemble the corner nippers, and do not suggest the smallest likeness to the lateral incisors which they will ultimately become.

The foal, during the first six weeks of its existence, does not learn to appreciate, at its just value, that which poets have termed "the milk of human kindness." A little shyness, however, exhibited about this period shows that doubt has partially shaken the confidence with which the appointed master was formerly welcomed. But the little being is still docile; it does not altogether avoid mankind. It will yet accept their caresses, permit patiently their mercenary inspections, acting as though its mild disposition, the natural inheritance of its tribe, derived actual

pleasure and amusement by submitting to the will of him whom it must shortly recognize as an earthly tyrant.

Why should not the primary lessons of domestication be now gently commenced, when the spirit requires not to be subdued and the temper needs not to be conquered? Is there not unnecessary cruelty in the plan which is commonly adopted? The young life is allowed to roam at large till the time arrives when man conceives the colt ought to be "*broken in.*" There is no gradual instruction; no endeavor to coax or to soothe by a display of gentleness. Obedience is remorselessly wrenched out of the being. Harshness naturally engenders resistance; but increased severity is employed, till the willing creature is literally conquered and its spirit "broken." This is done to an animal which is born anxious to please its superior. Let the reader ponder over this custom, and then reflect upon the retentive memory of the subjected race. They must remember—they have no ability to forget. Consider the custom, and also regard the nature upon which that custom operates; then say whether the breeder goes the proper way to develop that sweetness of temper and that gentleness of disposition which increase the value of equine property.

But, to return to the subject of the present paper. There is now a long pause before more teeth appear in the mouth. The little one, in the mean time, lives chiefly upon suction, and runs, during the period of perfect happiness, free by its mother's side. Upon the completion of the first month, seldom earlier, it may be observed to lower the head and nip the young blades of the shooting grass. From the third month, however, the habit becomes more frequent, until, by the advent of the sixth month, the grinders will be worn quite flat; or, having lost their pointed and jagged prominences, will, by the wear of constant mastication, have been reduced to the state which is suited to their function.



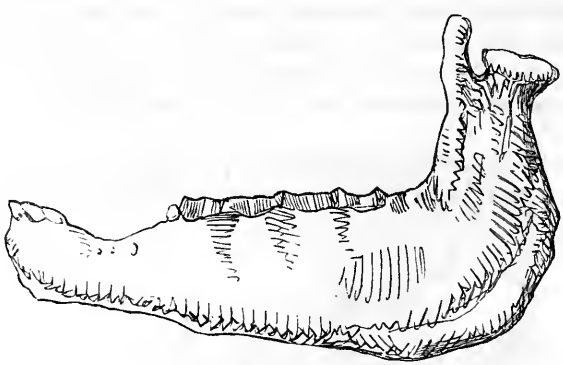
THE FRONT TEETH AT NINE MONTHS OLD.

The corner incisors come into the mouth about the ninth month, the four pair of nippers, which have been already traced, being at this time fully developed. Above is a view of the foal's teeth, as these are ex-

hibited at the period named. The reader will remark that the corner incisors, which are depicted as through the gums, do not yet meet, though these organs point toward each other; neither has the membrane of the mouth at this time entirely lost the deepened hue of infancy.

From this date, however, the gums gradually become pale, till, by the completion of the first year, the membrane has nearly assumed that complexion which will endure throughout the earlier period of existence. All the incisors are, by the first birthday, well up. The masticatory agent, although consolidated, has not, when the quadruped is one year old, entirely lost the roundness and bluntness of its inferior margin, for which the jaw at birth was peculiarly remarkable.

This fullness of the bone is caused by all the grinding teeth which are in the mouth when the foal first sees the light being of a temporary character; the enlargement is consequent upon the jaw, therefore, having to contain and to mature the long permanent grinders which, within the substance of the bone, are growing beneath the temporary molars. To contain and to allow the large uncut teeth to become developed, before appearing above the gums, causes the small jaw of a diminutive foal to be disproportionately thick, especially when this part is compared with the same structure in an aged horse; but the mind is reconciled to its apparent clumsiness when apprised of the uses to which the organ is subservient.



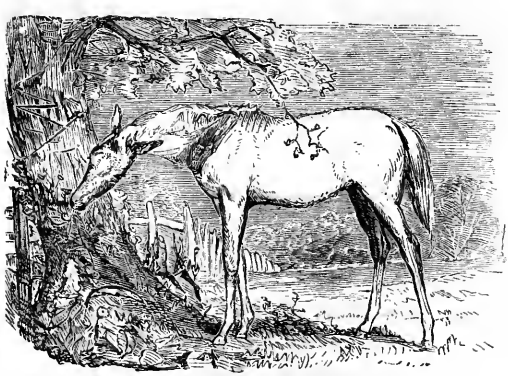
THE JAW OF A ONE-YEAR OLD.

At one year old, the first permanent tooth appears in the head. This is the fourth molar, or that which is represented as the most backward grinder in the appended engraving. The reader will not fail to remark the greater length which the jaw-bone presents at one year old. The additional extent also in the opposite direction cannot otherwise than be observed. This increase of size was necessitated to cover the increasing

size of the recent molar; also, to afford room for the partial development of two other grinders, which, as age progresses, will appear behind that which is now the last tooth.

About this time, frequently at birth, little nodules of bone, without fangs, merely attached to the gums, appear in front of each row of grinders. These are vulgarly denominated "Wolves' Teeth," and were once held to be of vast importance. At present, however, they are recognized as the simple representatives of those organs which in other animals (as in man) render the teeth a continuous or unbroken curve. They are, by experience, found to be harmless. It is idle to remove these organs, especially as they generally disappear with the shedding of those members facing which they are located.

Although by this period the foal has lost the furzy tail, nevertheless it has not assumed the aspect of the horse. Its face and its back want length; its trunk needs bulk; its legs are much too long; and no one in his senses should, for an instant, imagine it could be a full-grown specimen of its race. Indeed, the author would not mention such a possibility, did he not know a single instance where an error of this nature was actually perpetrated with a creature of the equine order. A cockney gentleman took up his residence, a few years ago, in one of the channel islands, and wishing to procure some safe animal for the amusement of his children, the simple Londoner actually purchased and worked a little donkey, barely one year old, in his ignorance mistaking the animal for an ass which had attained its maturity. That no reader of the present volume may commit so cruel a blunder, the portrait of a horse, as it appears at the first year of its age, is presented below.

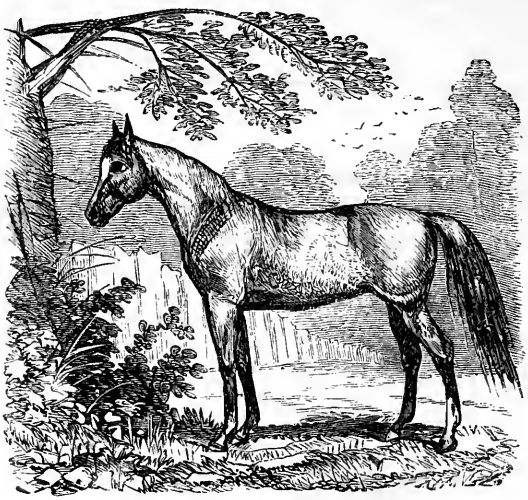


ABOUT ONE YEAR OLD.

The changes in the teeth, after the first year of life has been attained, are characterized by the longer periods which divide them. Nature

appears, as it were, resting to draw breath for a mightier effort than she has hitherto undertaken. Months have, heretofore, separated the advent of single pairs; but, from this date, these appearances are to be reckoned by numbers and by years. The foal, to the point of its present necessities, has been provided for. It has teeth sufficient to support and to maintain its growth.

Nature has now to render perfect the body, before the teeth. Accordingly, between the first and the second year the alteration in the general aspect is very marked. All the helplessness and pretty ungainliness of infancy disappears by the expiration of the time mentioned. The animal's frame then suggests something of those beautiful proportions which it is soon to display. Its body, however, still needs maturing; and no one, less wanting in common sense than a racing man, would think of subjecting the youthful and tender form to the hardest of all actual work.

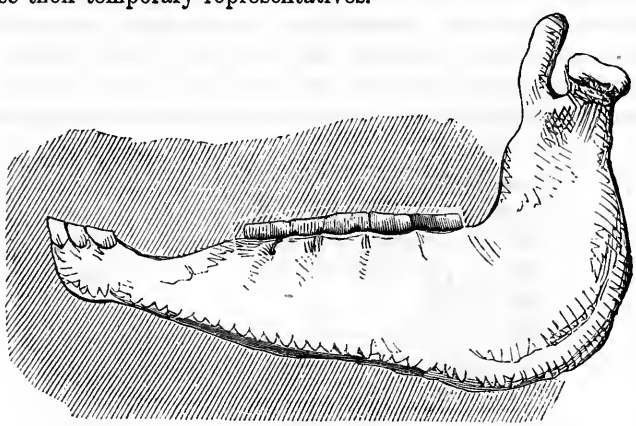


ABOUT TWO YEARS OLD.

The very aspect of the creature should denote it to be unsuited for such performances. It must, to foreigners, read as strange intelligence, that the *nobility*, who patronize the English course, applaud the contests between two-year olds; while the *bumpkins*, who breed horses for the general market, allow the quadruped to enter the third year before the colt is given over to the breaker. Alas, for the hardihood or want of sensibility displayed by the most exalted, when prompted by the greed of gambling!

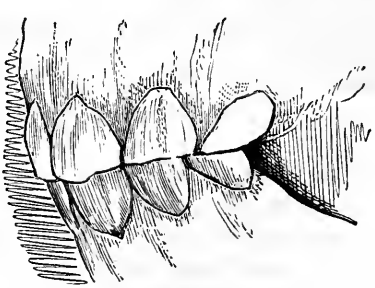
Nothing in the above sketch is more striking than the contrast pre-

sented by the character of the head, when compared with the image which immediately preceded the last illustration. The face has perceptibly lengthened; for by this time a second permanent molar, making five grinders on both sides of the upper and of the lower jaws, has broken through the fleshy covering of the gums. Preparation is also being made for the advent of the sixth grinder, and for changes in those milk molars which were in the mouth when the animal was born. At the same time, additional width is imperative to allow the permanent incisors to appear when the proper season arrives for these last organs to displace their temporary representatives.



JAW AT TWO YEARS OLD.

Should the front teeth of a two-year old mouth be examined, there will be perceived a want of that fixedness which, one year before, was



THE INCISOR TEETH AT TWO YEARS OLD.

the characteristic of these organs. The central nippers appear to have done their duty, or, at all events, suggest something approaching to maturity has, during their brief existences, been attained. It will

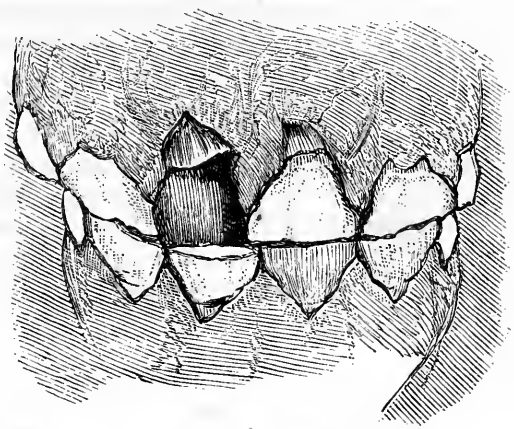
hardly provoke regret—certainly it cannot excite wonder—should these once beautiful ornaments of the foal's mouth be displaced. Indeed, the aspect of jaws in the two-year old plainly intimate approaching alteration, which in a few months will become apparent.

Three years old is the period when the greater number of colts are brought to market. About this age most animals begin to perform work. Omnibus horses are purchased when only thus far advanced in life. The army also buys its remounts when no further matured. Carriages are drawn by young horses which, when they become three years old, are resigned to the bit, the bearing-rein, and the exactions of London's fashionable ladies. Huntsmen, to be sure, have discovered that a quadruped must be "full five" before it can gallop "cross country," take fences, and be ridden in at the death, or even be expected to "hold" a good place during "the run." But all gentlemen like to sit on the yielding back of a youthful steed; though, to be properly maintained, such a seat will, very probably, cost fifty pounds a year, if not more money. The upper classes of society, and those who sacrifice personal judgment to mimic their example, seem to act as though they were assured that equine life was, by the third summer, fully fitted to endure the severest extortions of mankind!

To embitter the fact, every year of the horse's life is not calculated according to the calendar. Man chooses to estimate the age of his possession by another standard than that of the seasons. The first year of hardly two animals in the kingdom is precisely of the same length. Horses are, by the Jockey Club, permitted to have only two birthdays. Thus, all blood foals must first see the light on the first of January; or, should one presume to peep at the world upon the thirty-first of December, the decision, which admits of no appeal, will esteem the intruder one year old when the second day of its existence commences. Then all animals, not thorough-bred, must forbear to look upon creation until the first of May comes round; or, if they dare to mistake the time, even by an hour, they are absolutely pronounced one year old, before the little beings can fairly stand up and look about them.

Such regulations may be very convenient for the purposes of the Jockey Club; but nature has not yet given in her submission to human institutions. Medical men know that ladies cannot always calculate to the minute; therefore mares, which have not yet learned arithmetic, should not be held so very strict to their reckonings. Moreover, when men will pay to sit upon the back of a three-year old, it is of all importance to the spine, which has to endure the burden, whether the nominal birthday represents the actual time or merely implies the animal is two years and half an hour of positive age. However, the teeth most ob-

stinately ignore the sage code of the Jockey Club; but the laws of that controlling body disdain to notice any variation; for the creature which has lost but one nipper, and the quadruped which has four permanent incisors fully up, are both esteemed to have been dropped at the same hour, though an animal suffering the first-named change, speaking truthfully, may be only rising three.

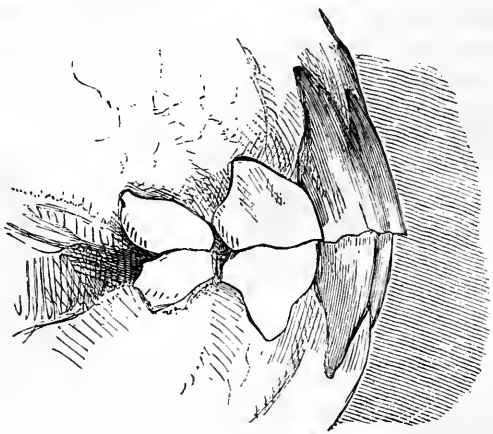


THE INCISORS DENOTE THREE YEARS OLD.

At the same time, the confirmed mouth, with the nippers thoroughly consolidated, and gums not showing a tinge of redness, can be esteemed of no greater age: both are three years old; for both must have been born on the first of January or on the first of May,—they had no business to appear at any other time. If they were presumptuous rebels against the just authority and recognized dignity of the Jockey Club, then they are beyond the pale of all consideration, and must bear the consequences of their temerity. The differences exhibited by their mouths are, therefore, held to be of no account.

The age at this period ought to be absolutely ascertained; for most horses, when three years old, undergo the greatest exertion. At this period, the animal generally has to suffer the instruction of a rude and an ignorant—frequently of a brutal and a savage—man, who is justly denominated "*a breaker.*" Then, should the "broken" be thought worthy of a saddle, it is given up to the gentle mercies of a rough rider, and has to be tortured till it is gotten well together, and has thoroughly learned its paces. In short, its gentle spirit has to be subdued, or fear has to master timidity. How little does man know about that life he has been accustomed to coerce! The pride of this world prefers the

compulsory drudgery of a spirit-broken slave, to the happy service of a willing friend. The horse is sent upon earth, prepared to serve and eager to share the happiness of its lord; but it is not understood; it meets with no sympathy; it is treated as a wild and ravenous beast, whose subjugation must be enforced and whose obedience must be compelled.



THE INCISORS DENOTE NO MORE THAN THREE YEARS OLD.

The bit is put into its mouth when the third year has been attained. It is driven from the field and from the cool grass; at a period of change and of debility it is expected to display the greatest animation, or to learn strange things from him who teaches only with the lash or with the goad. When its gums are inflamed; when the system is excited; when the strength is absorbed by an almost simultaneous appearance of twelve teeth, it is led from the plain and made, with its bleeding jaws, to masticate sharp oats and fibrous hay. At this age, when fever prevails in its blood, and the growth of its frame naturally weakens the muscles, it is expected to have leisure to master new teachings, animation to show off strange acquirements, and stamina to endure the weight of the tyrant on its back.

From this date, it is the inhabitant of a close, a fetid, and a heated stable. It may languish for a cool draught of pure air; but its head is haltered to the manger, and there it must remain, to inhale the tainted atmosphere of its abode. The fire natural to its condition may rage; but it must not slake the thirst which consumes it till the groom brings a pail, only to permit so many gulps or "go downs" to be imbibed. Nay, if the poor captive should shift its feet, turn its head, or change its

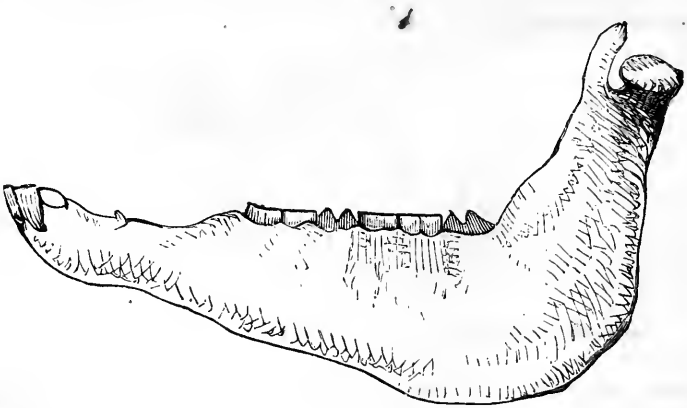
attitude, in the restlessness of fever, it offends its custodian, who, loung ing upon the locker, watches to maintain order, and can punish, should any horse sin against a groom's notion of propriety. Within the stable, of an afternoon, all is silent! The man is uneasy, because of an inward consciousness that he is not discharging a humane office. The animals are fidgety under unnatural restraint. The very air of the place is oppressive. Nothing appears at ease, save the cat, and this creature dozes and purs with enjoyment. But for the poor colt there is no sympathy. For should the cutting of many teeth inflame the gums and destroy the appetite, an iron is made red hot and violently forced into the mouth, under pretense of burning away the groom's favorite disease—"the lampas!" which is purely an imaginary disorder.

JAW OF A THREE-YEAR OLD.

It has been described that a three-year colt cuts twelve teeth. The above engraving represents half the lower jaw of an animal which had seen three summers. In it the reader will readily recognize those organs which are of recent appearance, by their darker color, by their larger size, or by their differing in shape from the other members. These new teeth are a central incisor and the first two grinders. The horse has two jaws and two sides to each jaw; therefore the same number being present within each side of both jaws, the teeth already alluded to appear during the third year. However, even the quantity named rather understates than overrates the fact, for frequently the tushes are cut during this period; should such be the case, the colt acquires no less than sixteen teeth in twelve months. We know what the young beings of our own species suffer when the gums are ruptured and the bones absorbed by the organs of mastication; the danger then encountered leads to a belief that the great agony endured is increased by a rapid growth

of the body simultaneously weakening the system. The teeth are only a part of the living organism; therefore, as when a part moves we may conclude the whole system is in motion, the advent of sixteen huge teeth, alone, might reasonably unfit the quadruped for commencing its education, or for undergoing the severest portion of its labors. But how do the customs of humanity appear, when illumined by a consideration of the sufferings which nature is imposing at the time the colt is tasked to its greatest exertions?

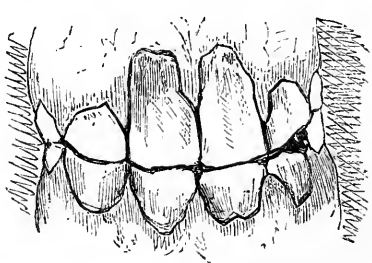
Some *very low* classes of horse proprietors will, however, make the work of the three-year old colt as light as possible. The vulgar generally regard the frame at this age as not perfectly matured, and they treat the strength as not equal to full labor. A nice practical comment is thus published upon the behavior of those gentlemen of title and of fortune, who train, start, and make animals run races at two years old! Few members of existing society, however, will accord any indulgence to a colt during its fourth year. Yet if the quadruped once possessed any claim upon consideration, the animal at this period has positive title to our forbearance. For the second effort must be more exhausting than the first; since the latter has to be accomplished with diminished power. Thus the four-year old has to perfect as many teeth as are known to protrude into the mouth of the three-year old.



JAW OF A FOUR-YEAR OLD.

The tushes in this view, however, must be disregarded. The precise time of appearance is uncertain with these analogues of the canine teeth in man, or of the tusks in the porcine race. They may come up at the third—they often are delayed to the fourth year; sometimes these teeth never pierce the membrane of the gums, it being very far from uncommon to see horses' mouths of seven years in which the tushes are absent.

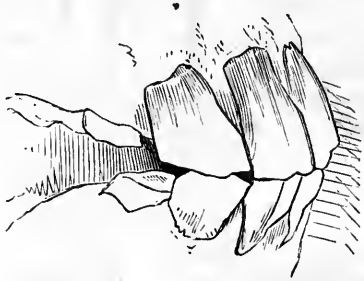
By the completion of the fourth year, the colt has certainly gained twelve teeth; that is, by this time there should exist, on each side of both jaws, one new lateral incisor and two fresh molars, being the third and the sixth in position. The appearance of the mouth now announces the approach of maturity; but the inferior margin of the lower bone still feels more full and rounded than is altogether consistent with the perfect consolidation of an osseous structure. We cannot take cognizance of the swollen and enlarged condition of the jaw, without being assured that some important process is going forward within its interior. It is among the firmest physiological truths, that nature is a strict economist and never does anything without intention; that every enlargement or every depression — however insignificant it may appear to human eyes—is a permanent provision for some appointed purpose, and has its allotted use in the animal system. Accordingly, it is discovered the sign we just remarked upon indicates the process of dentition is not finished by the termination of the fourth year. There are more teeth to be cut, as well as the fangs of those already in the mouth to be made perfect. This must be a laborious effort. Nature always toils slowly in proportion to the density of her work; when we regard the compact structure of a horse's tooth, we may conjecture the quantity of blood, the amount of inflammation, and the intensity of suffering which are necessary for its perfection.



ONE LOWER LATERAL INCISOR BEING THROUGH THE GUM DECLARES A FOUR-YEAR OLD.

Still a gentleman may purchase a colt with one lower lateral incisor barely through the gum. Nevertheless, such a condition of mouth must be accepted as announcing the animal to be four years old. That fact is not to be disputed, for have not the Jockey Club proclaimed it? Being four years old, most people view the colt as needing no indulgence. The creature, at this age, is generally urged to the extent of its power. Would mortal intellect think on that which it beholds, and endeavor to understand the evidence which is presented to its sight, how much that is now carelessly passed by unnoticed would be read as a plea for for-

bearance, and how much misery might be banished from that abode which the idle complacently term "a vale of tears"! The gums newly lacerated or the jaws bleeding do not indicate that conformation of parts or announce that established strength which could endure extreme exhaustion. Such signs rather suggest pain, and declare that life is suffering the penalty of existence. They ought to kindle the sympathy of him who likewise is born to sorrow, and crave the commiseration of one whose sad inheritance it is to draw breath at the risk of misery. Would any man expect his child—whether girl or boy—when only acquiring the permanent front teeth, to be equal to the toil which a task-master should allot to fully-developed strength in its prime or in the maturity of its power? The horse is not a speaking creature. It has no voice to plead or to complain. But what right has the lord of earth, being blessed with ability to control his acts and with reason to comprehend the signs of nature, to enforce that fate upon the dumb slave in his possession from which he would esteem it a duty to shelter his own offspring?

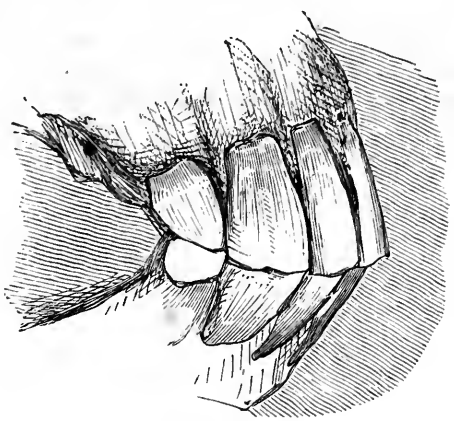


THESE TEETH EQUALLY DECLARE ONLY FOUR YEARS OLD.

The colt with four incisors in either jaw, all fully grown and worn flat with use, is esteemed to be no older than the animal with only one lateral nipper barely through the swollen gum. Both creatures, according to man's reckoning, are of one age. Neither can, says the Jockey Club, be an hour in advance of the other. Yet the colt with four pairs of permanent incisors in the mouth has not paid the penalty which nature exacts from early life. There are still the corner milk nippers to be shed; yet, while the provision necessary for that labor is taking place within the body, or while nature is preparing her mute offspring for the coming struggle, man considers the poor quadruped as fully developed and as enjoying the prime of its existence.

The teeth may be scarcely visible in the mouth, nevertheless such a sign announces the fifth year to be attained. Man, who estimates a horse's life according to the laws of the Jockey Club, and ignores na-

ture's mode of declaring the duration of existence by signs and attributes; man, who in his impatience refuses to reckon age by those functions which the body has perfected or which it has to mature—man seizes upon the imperfect being, as a creature fitted for the accomplishment of any kind of labor. There are, at five, no more bothering teeth to cut. All are through the bone, and the mouth will soon be sound. The animal must be in its prime, and the longest day or the hardest run should not beat it to a stand-still. Therefore, show off your horsemanship. Mount, trot, prance, gallop, and leap, as you please. Everybody says the horse at this time is in its prime. Tear on to plowed fields.



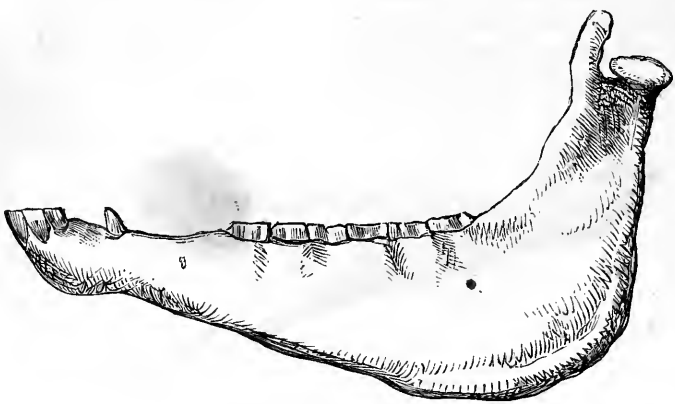
FIVE-YEAR OLD.

One upper corner permanent incisor has been cut. The lower corner milk incisor is still retained.

Whip the brute over the widest ditch. Dig your spurs into the flanks and take the stiffest hedge. The laboring beast may breathe a little hard or possibly may reel: but, so the quadruped does the performance, and is scarcely alive after it is accomplished—the owner can hail his five-year old as a seasoned horse!

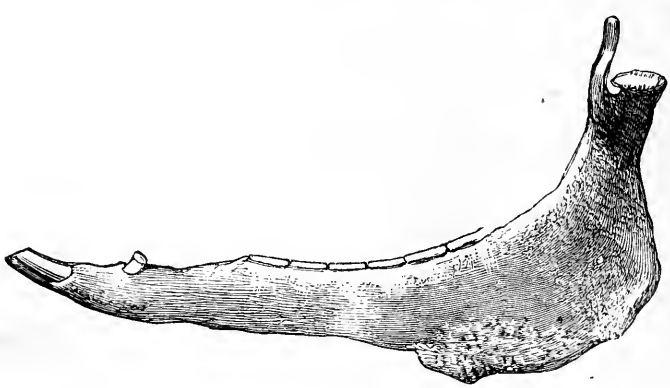
Were the writer to pursue this line of observation from year to year, the features becoming more minute as time progresses, the investigation might ultimately grow wearisome. As age increases, so do the bones contract, till absorption at length commences: or at thirty years all the appearances of strength, which were conspicuous, will have entirely vanished in the domesticated quadruped that has been subjected to hot stables and hard food. The jaw no longer seems endowed with greater bulk than is needed for the discharge of its function. It has become comparatively thin, and where it once was wide, it is now narrowed

Then, the grinding surfaces of the molars are no longer even or straight. Comminution of an artificially-prepared diet, continued for a number of years, seems to have worn the organs of mastication into a shallow and eccentric curve; or, as pressure persevered with upon any living substance promotes absorption, probably the constant grinding of hardened food has caused parts of the once even surface to be removed.



THE JAW OF A FIVE-YEAR OLD.

However, many readers may feel disposed to turn from the next illustration, feeling their dislike of the image to be justified by denominating



JAW OF A THIRTY-YEAR OLD.

it an extreme instance. As such it is adduced, and no wrong is, therefore, done by so regarding it. It was inserted simply as bearing conspicuous evidence of that fact which it was the desire to establish. Few,

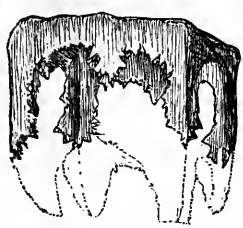
very few English horses live to reach the thirtieth year; but to show that those signs which were remarkable in the last engraving commence at an earlier period, below is the jaw of a twelve-year old horse, in which the presence of all the indications that at the thirtieth year seem exaggerated, may be clearly discerned in their commencement.

JAW OF A TWELVE-YEAR OLD.

The author must now explain the phenomena to which he has directed the reader's attention. The molar teeth are not all of the like size, nor of one form. The organs occupying the upper jaw are nearly, not quite, double the width of those which are located in the lower jaw. The inferior molars are the grinding agents, or the active organs of mastication. The superior teeth are simply the passive tables upon which, or against which, the food undergoes comminution. The slab is always the lowest of the two in human mills; but nature has more to provide for than the mere pulverization of certain substances. With mastication, actually commences a very compound process. With the act of chewing, digestion begins; it was ordained that more than any mechanical invention can accomplish should be imperative to the due performance of this function. The benevolence of the All-wise instituted that while his creatures were promoting the healthy exercise of the appropriative necessity, they should likewise excite their enjoyment. Therefore when pulp is masticated, the pressure of the teeth expels the juices, which fall directly upon the seat of taste. When a harder substance has to be comminuted, the bulk is first shattered into fragments; the particles, descending upon either side of the teeth, have to be gathered up and placed again between the masticatory organs. The movements of the tongue and jaw excite the salivary glands; the broken substance becomes min-

gled with the secretion of the last-named bodies. Saliva extracts the savor from the food; and the tongue also brings these in contact with the seat of taste, while discharging its office of collecting the broken pieces.

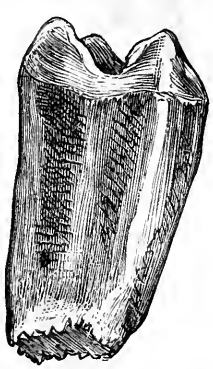
The reader being now fully informed as to facts, may have patience sufficient to peruse an explanation of the principles on which the foregoing statements are founded. Such a mode of proceeding may, to certain methodical writers, seem to be transposing the proper arrangement. The author does not undertake to defend his actions on the score of their propriety; but he feels that he is addressing human beings in whom a desire to know is the best possible foundation on which knowledge can be established; consequently, principles become less repulsive when communicated after incidents have kindled curiosity.



THE CONDITION IN WHICH THE TABLE OF A TEMPORARY MOLAR IS CAST FROM THE MOUTH OF A HORSE.

The dotted lines merely indicate the extent of the tooth previous to absorption.

The primary molars cannot boast the length of the fang, though they exhibit very nearly the same extent of superficial surface as characterizes the succeeding teeth. They have rather shallow roots, which are not composed of those consolidated materials that are present in their immediate successors. When the original molar is shed, the temporary tooth is not expelled entire from its position, but the pressure of the growing organ (which comes into the mouth exactly where the milk grinder stood) causes the root to be absorbed, till nothing but a superficial shell has to be ejected.



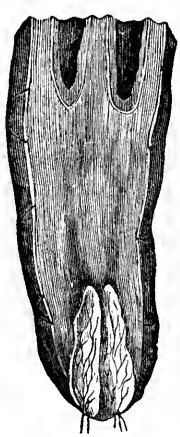
A FIRST PERMANENT MOLAR, AS IT APPEARED IN THE MOUTH, UNCOVERED.

This tooth occupied the fourth situation in the jaw; therefore the root would require to be considerably extended by subsequent growth.

The horse, in its natural state, exists on fibrous grasses; it therefore becomes essential the animal should retain the power of masticating such substances. Nature never withholds what is necessary to the well-being of her creatures. The mode in which the Common Parent provides for the preservation of this ability in the horse is perfectly distinct from any provision that He makes for most earthly creatures. The temporary remains of a molar tooth are not shed till another organ is in the mouth at hand to permanently supply its place. But the permanent tooth does not appear ready flattened

and prepared to discharge its office. It is cut with certain angular prominences upon its masticating surface, which must render the animal disinclined to employ it on the instant of its development. This disinclination allows a pause, during which the various structures can be consolidated, and at the end of such brief space the prominences have become blunted, while the organ, being firmly planted, is then ready for mastication. Is it not surprising how a plain statement of facts can reasonably account for that disinclination to feed which, to the groom's mind, announces a state of disease that shall necessitate the employment of burning iron to eradicate what the man styles "Lampas!"

There remains, however, to account for that width and depth of jaw by which the head of the youthful horse is distinguished. The reader is requested to attentively inspect the last illustration. The size and length of fang cannot fail to awaken his surprise. Nevertheless, if this part be regarded it will be seen depicted as of a ragged, incomplete, and apparently of a hollow condition. So, when the tooth has displaced the temporary molar, and has taken its station within the mouth, it has still to grow. The protruded portion may be consolidated; but the unfinished extremity is denominated the cavity of the pulp. That pulp consists of a fine bladder, on which ramify numerous blood-vessels; but the interior of which contains simply a clear fluid. This is the secreting membrane of the tooth. Out of this watery bag the wonderful chemistry of nature can extract the most condensed material that resides within the strong body of a horse.



SECTION OF A MOLAR TOOTH.

Another feature of the above tooth, because it balks expectation, can hardly fail to attract notice. The dark hue of the outward covering, being abhorrent to human notions of youth or of purity, is generally attributed to dirt. The tooth of the horse is, however, composed of three substances: a tough and fibrous material, called crusta petrosa; a thin layer of crystalline deposit, named enamel; and a kind of compact bone, spoken of as dentine. They occur according to the order in which they are named. The bone exhibits a yellow tinge, and is present in the greatest quantity, for it forms the inner bulk of the tooth. The crusta petrosa is a comparatively thick external envelope, being about five times the substance of the enamel, to which it is an outward protection. The components are thrown into various convolutions; but the order alluded to is always preserved. The bone or

dentine is invariably the internal substance; it needs to occupy such a position, as within it the sensation resides. The crusta petrosa and the enamel may be tampered with without perception being aroused; but the dentine is capable of communicating the acutest agony; and it is upon the dentine that rogues operate, when they "bishop" an old horse.

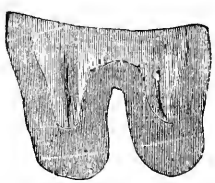
To convince the reader that nature has not needlessly sacrificed the whiteness of the horse's tooth, the author will dilate fully upon the many services afforded by the dark-colored crusta petrosa. To render the explanation more intelligible, reference will be here made to a common tool seen every day in the hands of an ordinary mechanic. The bricklayer's trowel appears to be nothing more than a thick layer of metal; but it is hourly put to uses for which iron would be too soft, and steel would be too brittle. Therefore, the blade is composed of a thin layer of steel, inclosed within two comparatively thick layers of iron. By the combination of opposite qualities, perfect utility is produced; and this trowel, it seems hard to believe, was not suggested by that arrangement which is conspicuous in the horse's tooth.

The enamel, hard, brittle, and readily fractured, but presenting a fine or a cutting edge, is developed as a thin layer, convoluted upon the sides of the dentine, and securely covered by crusta petrosa. That the incisive substance may fulfill its office, may sever or comminute the tough and fibrous herbs upon which the equine race subsist, it is inclosed between two elastic bodies, the whole being held together by the vessels which pass from the exterior to the interior of the organ, though these vessels do no more than travel through the enamel without nourishing or supporting it; the latter structure being of a crystalline nature, or strictly inorganic, therefore not fitted to appropriate nutriment.

The crusta petrosa is, however, of further use than has been already stated. The horse's grinders are generally supposed to be gifted with a power of growth whereby they are enabled to repair that perpetual loss of substance to which their employment must subject them. The teeth, certainly, are not perfected when the crowns first appear in the mouth; so far the opinion is capable of being upheld. But when once completed, the dentine is not endowed with any innate ability to renew its loss of substance. The wear consequent upon continual use is provided for by the length of fang which characterizes the permanent molar of the quadruped. As the surface gradually decreases, so are the lower parts of the teeth, by the contraction of the jaw-bones, forced into the mouth, while the outward investing substance—the crusta petrosa—being gifted with a limited power of increase, is enabled thereby to firmly retain the protruded fang in its new position; although the contraction of the

bones, which is always going forward as age advances, does not necessitate the power of growth should in early life be largely exhibited.

With almost every form of being, as years accumulate, the ability to masticate becomes enfeebled. It is with the horse as it is with other animals. The thin coating of enamel does not extend to the ultimate root of the fang, so that in advanced age the power of the molars is almost destroyed by the absence of the cutting agent upon the grinding surface. The chief component, moreover, or the dentine, diminishes in quantity as in solidity; the last portions of the molar, therefore, could not fill the socket, only for that ability to increase with which the crusta petrosa is gifted. Upon the extreme roots of the grinders, taken from the jaws of very old horses, this substance is always found in great abundance. In illustration of this fact, a sketch made from the tooth of an aged quadruped is here inserted; the body has been sawn asunder, to exhibit the proportions and the substances that entered into its composition. The reader will remark certain dark lines upon the dentine. These indicate the places where existed the cavity of the pulp, which once served to nourish the organ; but it is lost as vitality lessens with the advance of senility. Does not the reader, as he inspects the engraving, perceive the wickedness and the folly of placing harsh and dried food before a creature which nature, in age, deprives of ability to comminute such a form of sustenance?



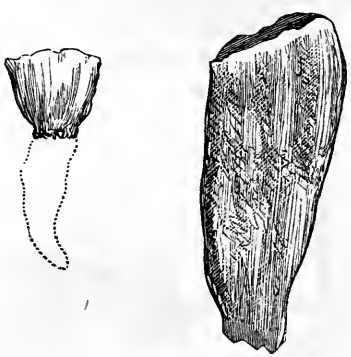
SECTION OF AN AGED MOLAR TOOTH.

The permanent incisors are not cut after the same manner as the molars. The nippers being merely employed to bite the grass, a wide vacancy does not necessarily incapacitate the other portions of the excising apparatus. A blade can cut, even though a large notch exist upon its edge. Whereas the points which are developed upon the upper surfaces of the newly cut molars must render the grinders entirely useless; although the short period of enforced abstinence, which announces the appearance of a fresh double tooth, may be nature's own medicine to quiet a feverish system, burning with morbid excitement.

The front milk teeth have fangs when they appear in the mouth; but no fang exists when the primary members are shed. The root of the temporary organ, when perfect, however, resembles that of the permanent incisor. It is only sufficient to fit the member for its purposes. In the same canal as was occupied by the milk tooth, the permanent incisor generally appears. Much suffering must attend the absorption of bone; yet, during the time the huge permanent nipper is forcing its way through the narrow channel, which held firmly the diminutive milk

tooth, and while the smaller fang is by pressure being also absorbed, the colt receives no consideration at the hands of the groom or of its master. Both are equally ignorant of the necessity for kindness; but each regards any indication of pain as one of those visitations of disease to which young horses are said to be peculiarly liable.

When the foal has shed the front milk teeth, the entire of the serviceable or visible portion of these members is displaced. They are endowed with no power to supply any diminution of their substance, neither are they capable of renewal; whereas the long permanent incisor may be viewed as all tooth, and possessing no fang; for as the upper portion wears, so does the lower part protrude or supply its place. The two teeth, however, present a strong contrast when considered as

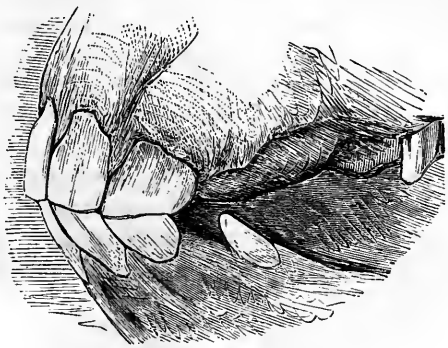


A MILK AND A PERMANENT INCISOR TOOTH.

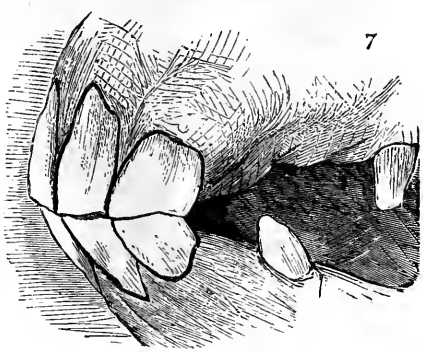
organs, both occupying one cavity, and both united to fulfill the like uses in the same animal. The illustration last displayed represented a permanent and a temporary incisor; the uneven mark dividing the milk tooth indicates the appearance of the organ after the absorption of the fang causes it to be cast from the mouth, while the dotted line shows the shape and the extent of the fang previous to its absorption by pressure.

The amount of root natural to the permanent incisors enables those organs, as years increase, to alter their arrangement, length, and direction, without being displaced. In youth, the united front teeth compose a curve, or almost a semicircle. In age, the same members incline toward a straight, or at best form an irregular line. In the colt, the teeth are flat, smooth, and filbert shaped; but in the old animal, they are decidedly long and angular. When the permanent teeth first appear, they are nearly perpendicular; but when they have been a long time exposed, they protrude almost in the horizontal direction. Looking, from the side, at a young mouth, the spectator can behold half the nippers;

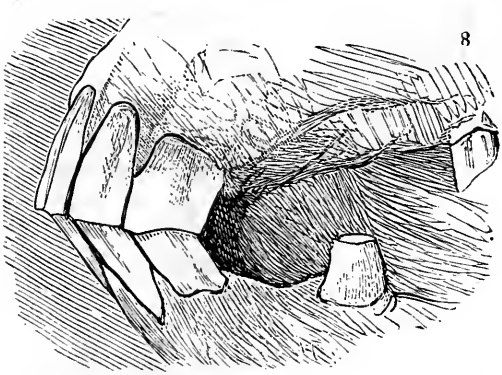
but when inspecting the old teeth from the same point of view, two only will be visible, though the full number shall be present in the mouth. In



SIX YEARS OLD.



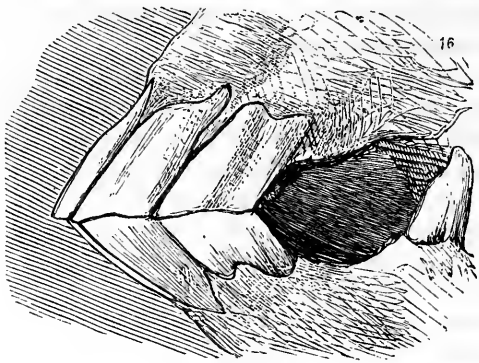
SEVEN YEARS OLD.



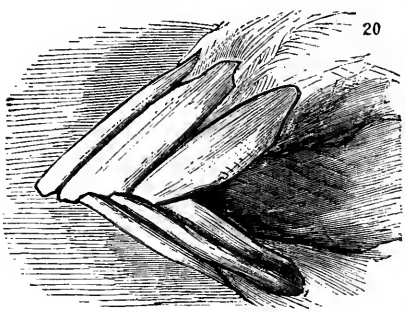
EIGHT YEARS OLD.

THE INCISORS OF HORSES OF DIFFERENT PERIODS OF AGE AFTER THE FIFTH YEAR.

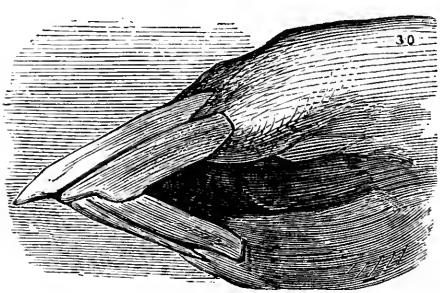
the aged quadruped, moreover, the narrowing of the incisors allows the spaces between the organs to be vacant. Within these spaces the food



TWELVE YEARS OLD.



TWENTY YEARS OLD.



THIRTY YEARS OLD.

THE INCISORS OF HORSES OF DIFFERENT PERIODS OF AGE AFTER THE FIFTH YEAR.

accumulates, which, being there retained and becoming black, looks as though the creature had been chewing tobacco. Such signs are too fixed

to be disguised. The accumulation of blackened food, it is true, may be taken away; but its removal will leave the interspaces, if possible, still more conspicuous. So also the long teeth may be shortened; but they will not be elevated to the perpendicular, or changed to a filbert form, or restored to the semicircular arrangement.

The tushes likewise may be regarded. These teeth are sometimes absent in mares, and in animals of the female sex are seldom developed of the size which they commonly exhibit in the male. When first cut, the tush is spear shaped, having well-defined grooves running down its margins. As age advances, all pretension to this form is lost. The tooth either becomes very flat upon its crown or it may be rendered level with the gum; else it grows very long, looking more like a coarse spike than the organ it really is. Also, when it originally appears in the young mouth, the tush ranges evenly with the parts from which it grows, and points forward. As senility is attained, the member is directed outward; with extreme old age, it faces backward. The contraction of the jaw causes the tongue to protrude from the free spaces between the teeth, while the consequent shallowness of the canal formed by the branches of the bone occasions the saliva to dribble forth when the lips are parted.

The indications of extreme age are always present, and though during a period of senility the teeth cannot be literally construed, nevertheless it should be impossible to look upon the "venerable steed" as an animal in its colthood.

No man can accurately interpret the signs of the teeth after the fifth year. A guess, more or less correct, can be hazarded; but nothing like confident judgment can be pronounced subsequent to the period just named. Cases will frequently occur, which shall set our best endeavors to be correct at defiance. But for such instances it is not difficult to account. The Jockey Club may order as it pleases about birthdays; but children and foals will, nevertheless, obtrude upon the world all the year round. Such downright absurdity, as a pretense at controlling the operations of nature, was never perhaps equaled, save by the burlesque monarch depicted by Mr. Planchè, who, because he is hungry, *wills* that it *be* one o'clock, when the sun declares the time to be only twelve. It might be more convenient, certainly, if foals could agree all to put in appearances at a particular date; but until such an arrangement has been entered into by the parties principally concerned, it is idle presumption for any set of men to issue ordinances which, never being observed, render "confusion worse confounded."

The difference between the times of birth in various animals, it is true, may cause different aspects in the teeth, and even induce men, in

obedience to the rules of the Jockey Club, to call a colt four, which truth and the teeth declare to be only three. Horses may therefore be readily reckoned older than they really are: but there is a general belief that rogues in Yorkshire can make the teeth say five, when the actual age is only four; or, in other words, can so successfully tamper with the mouth as to induce the teeth to belie the actual age. Ignorant people have a blind faith in the power of those who chance to be more knowing than themselves; but the author can only regard the general belief in "Yorkshire fives," as illustrating the total unacquaintance of the public with all that concerns equine economy.

An elderly lady once laid claim to a dog which she beheld led about the streets for sale. The possessor disputed her title, and the pair were by the police introduced to a magistrate. Both gave a different name as that belonging to the animal. The dog came to either appellation. When put down on the floor of the court, it went to man or lady with equal indifference. It was a puzzling case. At length, the bench was illumined by a bright idea. "Hand me the dog," cried his worship, who quickly placed it out of sight. Then, addressing the female supplicant, he said, "I beg your pardon. All you have said about signs and marks may be perfectly correct; but such things, possibly, in two animals, may be the same. The creature evidently does not appear to recognize its mistress; for, though it comes to your call, yet it will leave you when spoken to from an opposite direction. I beg your pardon, madam, we have settled, apparently, all points but one. Pray excuse me! But was your animal a gentleman or a lady?" "Oh! sir!" replied the distressed female, "mine was a lady dog." "Then I am afraid I must give the case against your ownership, for this dog is decidedly a gentleman." With that, he returned the animal to the man. "Stop, sir! Stay! Oh! pause! Consider, sir, those dog stealers can play such tricks," sobbed forth the disconsolate female.

So particular people appear to credit Yorkshire horse dealers with an ability to perform "such tricks." No doubt they have every wish; but the author questions whether they have yet attained the power to compel nature at their bidding. All they are said to do, as pulling out the milk teeth, firing and blistering the gums, are like the arts which were formerly used to raise the evil one; and, in the writer's opinion, about as likely to be attended with success. Cruelty is more calculated to retard than to promote development. However, if the mouth exhibit the signs proper to a five-year old, the animal may with safety be purchased, as being of that age. Should it be younger than five, the owner is the gainer; since the teeth do no more than indicate the development of the body, and an early maturity is the best evidence that the quadruped, during the previous years, has been tenderly nurtured.

Certain readers may feel opposed to the illustrations which have been inserted into this division of the present volume. It may be justly advanced that, in the earlier portion of the present treatise, the author asserted horses could live until the animal had reached its sixtieth year. However, recently he adduced the mouth of a quadruped which endured but half that period; yet this specimen exhibited features indicative of immediate decay.

Such an accusation would be well grounded; it could not be denied. The sixty-year old of which the writer spoke was not feeding in the stable. The creature whose teeth are delineated to represent the appearances displayed at the thirtieth year was not in the field, but tied up in a stall. The one quadruped was consuming its natural food, the other had to masticate those artificially-prepared substances which man finds it most convenient to place before the dumb captive.

The engravings inserted to illustrate the aspect of the mouth, during the thirtieth year, may therefore be regarded as exemplifying the evils which result from the present mode of feeding. Hay and oats, as now given in dry and hard conditions, are the most expensive articles of sustenance which could be found. Much of the hay passes through the system only partially digested. In what condition the oats are voided, the sparrows of the roadway and the chickens on the dung hill equally attest. Under the present system at least half the diet is ejected from the body unappropriated. Much more would be lost, but for the capacious and convoluted intestines of the equine race. Within these, the provender swallowed is long retained, and during the entire period of its retention it is exposed to the digestive action which its components are beautifully formed to resist.

Aloes, a most drastic purgative, is the one in common use with stablemen. It takes four and twenty hours before its operation is witnessed; for an entire day it lies dormant within the body, notwithstanding the aids of warm water, bran mashes, and occasional exercise are resorted to, so as to quicken its laxative effects. The animal, during this period, is obviously ill, and the medicine may be heard causing a "rumbling noise" within the bowels. But if a drastic purgative is four and twenty hours traveling along the digestive track, what period will be occupied by those dry materials which must have positively a constipating effect? However, the latter kind of diet is not all acted upon when cast forth; that portion which is ejected in an unchanged condition represents so much cash which has been expended to no purpose.

Of course, the mastication of artificially-prepared food wears the teeth, and also taxes the powers of nature far more than would the natural diet. By the operation of both causes, the horse's life is ren-

dered much shorter than it would be were the animal kept after a natural fashion. The diminished period of existence we will mildly estimate at one-half the natural duration; therefore, under the existing mode of stable management, every gentleman pays twice as much for an animal as under a better system need be given. Nay, the extravagance does not end here; for the unnatural nourishment first generates weakness, and weakness is the beginning of disease. There is, therefore, to be added to the account—annoyance, loss of service, and the veterinary surgeon's charges. To crown all, the proprietor cannot obtain the full exertion from the animal; the body being only partially supported even during the seasons of imperfect health. The incompletely digested food has also to be considered. Altogether, as the author has no desire to make out a case, suppose the latter influences reduce the value of the remaining portion of life one-half, and we arrive at the conclusion that the horse proprietor literally squanders fifteen shillings out of every pound he pays for his horse; and he is thus extravagant, simply because, to consult the convenience of his groom, he will persist in feeding the animal upon a most unnatural and injurious kind of diet.

This subject will, however, be fully considered in the next chapter, where "food" is separately regarded. The author must only here state that he is not advocating a return to grass, although grass may suggest an idea as to the proper kind of nutriment without itself being the thing desired. It is certainly true that horses look round for their food, and the stable is always in commotion when the hour arrives for its distribution. This fact, however, establishes nothing. Horses are fidgety equally during the period of watering. Horses, in other countries, are uneasy when the stable companions are being fed; yet in all countries they do not live as in England. In the extreme northern parts of the world, they eat dried fish; in the Crimea, they gnawed one another's tails; in Arabia, they feast upon barley and chopped straw; in India, rudely cut grass, which has frequently parted with its moisture as well as shed its seed, and a dark grain termed "gram," is their support. In Germany, they enjoy black bread. In Ireland, they delight in raw potatoes. In various parts of England, they enjoy different sorts of nourishment. In some countries, boiled substances are the favorite dish. In others, cut roots are swallowed with avidity; while there is a growing custom of administering those various seasonings, all of which bear the general designation of "patent food." In short, the stabled horse can apparently be brought to consume anything; but of all the known varieties of diet, the author must regard that which is harsh, dried, and artificially prepared, as the most convenient—but the most injurious and unnatural.

Its consequences are, perhaps, best exhibited by the thirst which it will generate. The horse is not, naturally, a large drinker; but if the internal portions of the body have to supply moisture, in order that these parts may extract the nutriment from dry food, the water must be replaced from an outward source. Horses have been known to be ill from excessive thirst. Mr. William Percivall, the late respected author on veterinary subjects, has recorded a case of this description. Nevertheless, copious draughts of cold water are frequently attended with danger; only, does it not exhibit a refinement upon cruelty—firstly, to imprison an animal, and fasten it to one spot; secondly, to give only such provender as must generate a craving for fluid; thirdly, to withhold the liquid which our folly has created a desire to imbibe?

The stable diet, moreover, throws the incisors out of use. These teeth, in the domesticated animal, are employed only to grasp a little hay and to pull it from the rack. They are of no further service. One of their popular names, "nippers," is in general a misnomer, for they are permitted to nip nothing; much less are they allowed to exercise their incisive faculty. Therefore, being thrown out of use, the members have no function to control their natural growth. They continue to protrude as age advances, till, by the thirtieth year, or by the time the quadruped has attained half the period of its natural existence, the front teeth have become long spikes, and are actual deformities within the mouth they were designed to adorn.

So palpable a sign is, however, not understood. To be sure, the present treatment of the horse slaughters the majority of its fellows before dentition is perfected. Few gentlemen, therefore, may have looked upon an aged quadruped; for prevailing fashion declares the creature, whose strength and youth have been devoted to man's pleasure, should be sold so soon as the advent of age is apparent. The chances, consequently, are, that the present chapter will be "news" to the greater number of readers. It may record facts which will be perused with wonder, and it may adduce circumstances which will be read with surprise.

Though up to the present moment these things may not have been properly regarded, from the present time there can be no excuse for continuing existing customs. Why should the teeth of the horse alone be subjected to abuse? The dog lives off biscuits and cooked flesh; the cat enjoys the scraps from the family table. Why should the horse, of all strictly domesticated creatures, be doomed to consume raw food? It would be cheaper to prepare all sustenance for digestion, since, in that form, less would communicate more nourishment; and if the matter is to be decided as a money question, there can be no doubt as to the side on which pecuniary interest would range.

CHAPTER V.

FOOD—THE FITTEST TIME FOR FEEDING, AND THE KIND OF FOOD WHICH THE HORSE NATURALLY CONSUMES.

THE folly of perversity or the madness of abuse can imagine no possible wrong that the human race have not inflicted upon the creature to which civilization owes its heaviest obligations. The horse, which more than shares in mortal toil, is forced to work before its bones are matured. When strained and deformed by the severity of labor, it is sworn at and lashed because its body shares, with all things on this earth, the perishableness which is inseparable from mortal existence. It is created to enjoy the freest breezes of the plain; but, by the superior power which has domesticated, the type of activity is doomed to stand, throughout life, within the narrow confines of a stall. It is the emblem of timidity; yet it is driven into every species of peril. Nature endowed it with fleetness, and formed it to delight in action; but mankind expect it to exhibit health during years of inactivity, and think its limbs should not become stiff from incessant lack of motion.

Its food grows abundantly on the surface of earth; every fresh mouthful necessitates an additional step; for the animal, when free, walks as it eats, and lowers the head, to collect its sustenance from the ground. Mankind imprisons the poor life; the hay is placed level with the ears, and the corn is given even with the chest of the animal. Nay, the very groom, when he permits water to be imbibed, raises the pail, resting its edge upon his knee. Nature enabled the horse to feed by night,—when the air is cool; when all is quiet; when the grass is moist, and when the flies are not abroad: then the emblem of concord pastures in peacefulness. The stabled horse is allowed to eat only by day. Though intended to be watchful, horse masters insist the wakeful quadruped should accept twelve hours of repose; and they lock the stable door, that its imaginary slumbers may be undisturbed.

The sufferer wears clothes only while under shelter. During summer it always retains its coat; but, as frost and snow approach, the covering which nature sent to conserve the body's warmth human wisdom either clips or singes away, dooming the native of a sunny clime to shiver in

the blast of a northern winter. Man knows that heat benefits his slave, yet the horse only feels it as the product of impurity; so that, either it must suffer from the lowness of temperature, or it must languish from the inhalation of a tainted atmosphere.

The summit of wrong, however, seems to be attained, when we consider the food which the companion of man is condemned to consume within the walls of its dungeon. The corn is gathered after it has become ripe, or after all moisture has ceased to circulate within the grain; and even then it must be hardened and further dried by age before it is cast into the manger. The juicy herbage of the field—the soft verdure of the earth—is the natural support of the creature. Nevertheless, man presents grass to his captive only after the wind and the sun have expelled moisture from the stems; and after fermentation in the stack often has parched the blades till these crumble beneath the touch.

When time has accomplished the hardening which human perversity regards as most essential toward maintaining the health of a horse; when both corn and hay have been transformed into stubborn and unyielding substances; at the age when the first will rattle harshly on being shaken in the sieve, and the last grate audibly when moved by the fork,—then, only then, is either placed before the quadruped. Such provision the prisoner must consume or starve. Hunger is the hardest of all task-masters. The dumb being cannot tell of the agony occasioned by man's forcing its organ's of mastication to uses which will wear down the hardest and coarsest of stones; it cannot portray the torment of thirst, begotten by the long pulverization of matter rendered tough and dry by artificial processes; it cannot describe the agony produced by the grating of such nutriment upon the tender membrane of the stomach; nor can it announce those cruel diseases which afflict the sufferer,—each being engendered by mistaken treatment, against which the afflicted is powerless to appeal.

That which the mouth was designed to prepare, the stomach was intended to appropriate. Moist food is most enjoyed by the horse, and moisture is likewise imperative for the completion of digestion. Upon the accomplishment of this process health and life are dependent. There is no part of the frame which is endowed with an independent existence. By that which the root absorbs, the remotest twig is nourished. The feet or the limbs may fail; man may term such a failure a misfortune, or speak of it as an accident; but the weakness of the body is the primary necessity of almost all such occurrences. The trunk must bend before the vigor of inflammation can be displayed; and health must have departed before the presence of disease is possible.

"Nonsense! folly! downright stupidity!" some sporting reader may exclaim. "Look at all men, when in training. Do not they, during such time, live upon *dry food?*" Certainly not. Not upon food "*dry*" in the same sense as is implied by the sound hay and seasoned oats of the stable. Bread, seen upon any human table, whether as loaf or biscuit, is a moist substance, when compared with either of the articles on which horses subsist. But what shall be said about the contents of the rack or the manger, when compared with the under-done rump steak of which man, when in training, so frequently partakes?

Nor is the subject fairly reviewed, when the form of food is alone considered. The horse does not graze without selection. Certain herbs are scrupulously avoided; others are eagerly sought for. The animal does not eat straight before it; but the head moves to either side, each mouthful being carefully collected with the lips before the juicy tops of the plants are operated upon by the teeth. The horse feeds only off the growing ends of the grasses. The varying herbage may be supposed to present numerous savors to the keen scent of the pasturer; and a fresh flavor may be relished with each new mouthful. Nature has evidently scattered variety, where the dull sense of man can perceive only sameness; and, to the temperate palate of a horse, the verdure of the fields may afford a delicious and an ever-varying banquet.

The instinct which enables the animal to make a selection among numberless growing plants, fades and is lost when moisture has departed with the color, and the perfume natural to the herbage has been changed by art. The animal perceptions may be puzzled; for art can defeat instinct. Some quadrupeds, as if much perplexed, will pick the hay, eating little, but spoiling more than is consumed. Others appear to distaste the preparation, and these refuse it altogether. Few inhabitants of the stable will accept all that may be placed before them, though the rejection may depend more upon the fastidiousness begotten by captivity, than be generated by positive dislike. Few animals exhibit either choice or discretion in the selection of certain portions of prepared fodder. The rejection of particular parts seems to be guided only by fancy or caprice. That which in the green state would be abhorred, when "cut and dried" may by preference be devoured.

We can reasonably conclude that the impulses of instinct, being natural instructors, convey wise admonitions. Many people are so credulous as to believe that the Creator is all-wise, and that nothing formed by the will of Omnipotence is without a special purpose. It is man who converts grass into hay; thus rendering nugatory that discrimination which was bestowed as a protection upon the lower life.

Some persons may feel disposed to assert that all power to injure is

also lost, when the natural odor of prepared herbage has been changed; they may argue that what was injurious, with the scent has also lost the characteristic capability to harm. Does chemistry uphold such a conclusion? The dried and powdered herbs of the Pharmacopœia point to an opposite inference. Experience and experiment warrant a contrary judgment. The yew-tree is an active poison to the horse. Gardeners annually clip the compact hedges of yew, which too frequently surround and shelter country lawns. The twigs often fall into fields where horses are pastured. While the cuttings remain green, the animals recognize the poisonous nature and refuse to partake of the fallen leaves. But let exposure dry the refuse, and the grasses of the meadow are deserted, to devour that which was previously avoided. The poison, however, has not evaporated with moisture. The odor, by which danger was recognized, alone has been lost; but the deadly nature seems to be more concentrated: or the issue may be rendered speedier by the lessened bulk of the dried vegetable, and the greater amount of it which therefore can be swallowed.

Apply the above illustration, and, guided by its teaching, say how far man is justified in presenting the wholesale gathering of a field to a hungry horse. It is true, we know of no injury being produced by hay. But we know that the stable, as at present managed, is far from a healthful abode. We are certain, instinct was not created without a purpose; and we have seen that the vegetable, which is avoided when fresh, is not rendered powerless by its moisture being expelled. Therefore, guided by such monitors, we can do no wrong by endeavoring to render hay a wholesome food. None of the grasses are positively poisonous; but the animal prefers those which have a crisp and clean appearance. Soft or woolly provender is never relished. It were an easy labor for a youth to select the good from the bad; while doing this, the boy might be instructed to reject all and everything which was not the fitting kind of grass. The cost of such a process would be very trifling, and the welfare of the animal might soon repay all extra outlay.

However, few, very few people know how to tell a good from a bad sample of hay. Vast quantities of that which no proprietor should oblige his imprisoned slaves to consume, are daily sold; some persons even prefer particular kinds of produce; while others, urged by parsimony, will purchase only damaged hay. There should be, however, in this substance little room for the exercise of choice or of discretion. The characteristics of good hay are very marked, and such only should be purchased by the careful horse owner.

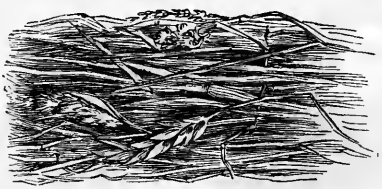
It is the intention of the author to offer some remarks upon this simple but excessively important topic. The comments will be accompanied

with tinted wood engravings, which will help the judgment, though these cannot inform the reader on every particular. Therefore, he must kindly assist the writer, as few things are more difficult to describe than taste or smell; since these senses are always under the control of individual predilection.

LAD SORTING HAY.

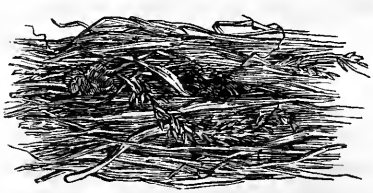
Upland Hay should look clean. Every fiber should appear distinct. The color should be bright and should convey an idea of newness. No dust ought to be present; neither should the sample, however much it may have been disturbed, lose its prominent features. The constituents will all point pretty much in one direction. Of course this order is not so absolute as to appear like arrangement, but the confusion which generally marks the fibers of the after-meath is never present in a fair sample of well-carried "Upland hay." The scent is commonly very pleasant—not so strong as, but in other respects little different from, the perfume of new-mown hay: to most people its odor is highly agreeable. Weeds should not be abundant; but the presence of foreign growths is clearly indicated by their darker hue, by the browner tint, and the fuller form. The stems should not have shed the seeds, though grasses vary so much in the period of their ripening that it is vain to expect some will not have broken this rule. When a portion is placed within the

mouth and is masticated, it rather communicates a mild and pleasant flavor than yields a strong or pungent taste. In short, cleanness and delicacy are the prominent characteristics of "Upland hay;" which some growers imagine is scarcely injured by long keeping. New hay is certainly objectionable. But the year's growth is wholesome feed by November; and, in the author's judgment, it is best when it first comes into use.



THE CHARACTER AND THE COLOR OF UPLAND HAY.

Lowland Hay.—This kind of preserved grass lacks the bright color, being more tawny than the preceding; indeed, the absence of the green tint is conspicuous, and can hardly fail to be remarked. The arrangement of the fibers is not so well preserved, neither is the crispness or the newness of aspect, for which "Upland hay" is notable, to be remarked in the "Lowland truss." The flowering heads to the stems are all but absent. When felt, it communicates a sense of softness. If rattled, no brisk sound is elicited. It has a stronger and a more pungent perfume.

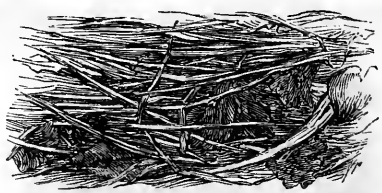


THE CHARACTER AND THE COLOR OF LOWLAND HAY.

The odor is very far from being so delicate; neither is the taste characterized by any pleasantness of flavor. When placed between the teeth, mastication communicates a sense of softness and toughness: the taste is coarse, almost disagreeable: at first it is vapid, though after a short space a certain amount of pungency is developed. The woolly texture; the want of boldness in the component parts; their comparative smallness; with the washed-out aspect of the whole, and the confusion of the mass, should prevent a novice even from accepting "Lowland" for "Upland hay."

Rowen or **After-meath** presents a greater confusion than even "Low-

land hay." The softness is more conspicuous; flowering heads are only occasionally met with; the stems are few in number, are small in point of size, and form no prominent feature of the whole. This species of fodder lacks perfume altogether; but, as regards color, it may have a slight greenish tint clinging faintly to it. Still, by its want of the brisk or the healthy aspect, and by its darker hue, it is at once recognized for the thing it is,—an unseasonable produce, reaped late in the year, and



A VERY FAIR SAMPLE OF ROWEN OR OF AFTER-MEATH.

got up long after the freshness of spring had departed. To the mouth it imparts a strong and slightly bitter taste. The odor is not objectionable, although it does not approach to a perfume. Horses which have been accustomed to the better sort, refuse Rowen, or only accept it after actual hunger has been experienced.

Clover Hay is universally mixed with grass and weeds. A good sample of this produce, a novice might easily reject as being too foul a specimen for his approval, and the hay of the second crop (which is not generally remarkable in that particular) be selected in preference. The stems also appear to bear a large proportion to the whole, when compared

A SPECIMEN OF THE FIRST CROP OF CLOVER HAY

with the flowers and the leaves. The fact of the stalks being rarely viewed in the clover field may render this feature the more conspicuous. But the stems are hollow, and consequently lose little bulk when dried. The flowers and leaves, on the contrary, are juicy; and no insignificant portion of their substance is, apparently, lost during evaporation. In the first cut of clover, however, the stems, though numerous, are comparatively fine, and the leaves, though dark, have no tinge of blackness. The

flowers are abundant, and faded, of course; but they still retain indications of their original color. Though compressed, they nevertheless suggest what has once been their figure. In taste, a marked resemblance is recognized between the slight flavor of the hay and the strong aroma of the growing plant.

The Second Crop of Clover is distinguished by the grasses and weeds of the first cut being all but absent. The stems are larger, firmer, and bear a greater proportion to the whole. The flowers are not so numerous, and are more dingy in appearance, as well as apparently less carefully

THE SECOND CROP OR AFTER-MEATH OF CLOVER.

preserved. Mastication also enables to be recognized a coarser and a stronger flavor than characterizes good hay of the spring's harvest. The leaves approach near to a black tint. When a truss of the first and one of the second crop of clover are placed together, the last appears remarkable for depth of color.

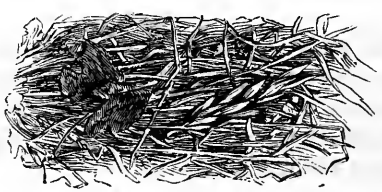
Heated or **Mow-burnt Hay** is that which has been subjected to such uncontrolled fermentation as shall scorch the substance, and, if not

A VERY EXCELLENT SAMPLE OF HEATED HAY.

checked, would ultimately fire the stack. A certain amount of fermentation is needful for the development of sound hay, but should the necessary action be suffered to proceed too far, "heated or mow-burnt hay" is the result. Most horses will eat this kind of fodder with appetite when it is first presented; but after the novelty of the diet has subsided, there are few animals which do not apparently loathe such produce. The illustration by no means represents the worst specimen which the author has encountered, but it is of that medium character which best conveys a just

idea of a general subject. From this sample, however, certain leaves could be chosen that are perfectly black, and which, when attempted to be rolled between the fingers, would crumble into powder. Such a peculiarity, together with the darkened hue, affords the easiest means of recognizing this provender, which, although some silly people by preference employ in their stables, is very far from being a wholesome food for horses. Burnt vegetable matter produces potash; therefore there can be no cause to reject, as a groundless prejudice, the assertion that much "mow-burnt hay" will occasion diabetes. It has a powerful odor, resembling the mixed smell which pervades a public hay market; but the taste has little to distinguish it, being somewhat vapid.

Weather-beaten Hay is equally devoid of smell or of taste. It has a ragged, a confused, and a broken aspect. The hue is deepened; but the color greatly depends upon the period of its exposure, the soil on which it has lain, the amount of wet to which it has been subjected, and the condition in which it has been "got up." So delicate a produce as care-



WEATHER-BEATEN HAY.

fully prepared hay, of course cannot be long exposed to the effects of wind and rain without its more choice qualities being deteriorated, while to the extent of its deterioration, of course the farmer can oppose no check. Therefore a fair general specimen, exhibiting the common characteristics of the majority of samples, is submitted to the reader; but it cannot be expected that a single illustration should embody the multiform aspects which are generated by diverse and powerful influences acting upon a perishable substance.

Musty Hay is readily recognized by its strong and peculiar smell, resembling the refuse which has been employed to stuff articles of cheap furniture. This it likewise calls to mind by its rumpled and confused appearance. It should never be offered to any animal as a substitute even for better food.

"Upland Hay," as will be seen by the foregoing remarks, is a fair general fodder for the horse. To it, however, a portion of clover hay should be added; but this last is best given in the form of chaff. Ready-cut chaff should never be purchased, because most persons have extraor-

dinary notions as to the ingredients suited for such a form of provender. Hay, which the animal refuses to touch when placed in the rack, is often salted and cut into chaff. Thus seasoned, and in such a shape being mixed with corn, it may be eaten. The horse is imposed upon by the salt and the oats which were mingled with the trash; but the sane proprietor has only to calmly inquire of himself—whether that savor which disguises the taste can also change an unwholesome substance into a wholesome nutriment?

It is likewise a prevailing custom to cut straws of different kinds and to throw the rubbish into the chaff bin. Such a practice is spoken of as among the improvements of modern horse-feeding. The quadruped may consume this species of refuse, but it is, in the author's judgment, not a matter for doubt whether such articles merely distend the stomach or whether they can nourish the body. People who advocate cheapness may be favorable to the use of straw; but these persons should not deceive themselves, far less ought they to impose upon others, by asserting so exhausted a material can possibly prove a supporting constituent of diet.

Within the stem of the ripened wheat plant no sap circulates. All the strength of the growth has gone to the seed. Were not the seedless stalk cut and preserved by man, it would shortly topple over, and, by decay, be mingled with the soil. It is well understood that grass, after it has shed its seed, is unsuited for making a nutritious hay. Grain-yielding plants are only cultivated grasses; and the art which has enlarged the seed and lengthened the stem cannot pretend also to have mastered the laws of nature by having endowed a refuse material with nutritious properties. Persons who desire to have straw mingled with the manger food of the horse, should take some pains to procure articles rightfully prepared. The plants should be mown while green; be properly treated, stacked, and husbanded with more than the care usually bestowed on ordinary stems. The same rule should be observed with regard to bean stalks, or whatever else is to be severed into lengths, and is to be esteemed a fitting food for the horse.

Thus prepared, the wheat stem might prove worthy the repute which is at present bestowed upon its exhausted representative. When harvested after this plan, the stalk would retain all that virtue which, at a later season, is expended upon the seed. It would nourish as well as distend. Indeed, the popular custom of giving horses that for food which adds to the bulk of provender, but does not support the system, cannot be too strongly reprobated; yet such a practice is followed in the great majority of existing stables. The animals, to satisfy the cravings of appetite, are compelled to devour more than their diminutive stom-

achs should contain. Over-gorging is likewise promoted by the habit of subjecting all kinds of horses to prolonged and unnatural periods of abstinence. The consequences of such customs are exemplified in the attenuated stomachs of most old subjects. Often this viscus, upon the muscular and secretive actions of which the health and the strength are dependent, when taken from the body of an animal which has long been subjected to the abuses practiced in the modern stables, is of so stretched a nature as to be semi-transparent, and sometimes as thin as brown paper.

When a horse returns home, after a long fast, it is most unwise to place the famished life before a heaped manger. First attend to its immediate requirements. These satisfied, and the harness removed, a pail of gruel should be offered to the animal. The writer knows it is said by many grooms that their horses will not drink gruel; the author likewise is aware that most servants dislike the bother attendant on its preparation, while few understand the manner in which it should be prepared. The general plan is to stir a little oatmeal into any pail containing hot water, and to offer the mess, under the name of gruel, to the palate which long abstinence may have rendered fastidious. The horse only displays its intelligence when it rejects the potion thus rudely concocted.

No stable is complete unless its furniture embraces a two-gallon pot, and a pail which is kept sacred to cleanly purposes. Then, with regard to oatmeal; this substance, as commonly sold by corn-chandlers, and some bakers, is positively rank. It is naturally sweeter even than other meals; but, by long keeping, it contracts a pungent and a most unpleasant taste. To be good, it should be fresh; and the coarser it is, the finer is the gruel which it yields.

There are few places in London where the oatmeal which is purchased can be depended upon. The writer, however, has for several months enjoyed, every morning and night, a mess of most excellent porridge, made from coarse Scotch or "round" meal procured of Mr. C. Rayment, corn-chandler, Queen's Buildings, Knightsbridge. It is so sweet and pleasant that the diet requires no "Kitchener," or accompanying condiment, to recommend it. The preparation is eaten without flavoring; and it seems to possess medicinal properties, as under its use the writer has lost that yellowness of skin which formerly denoted the liver to be deranged, while he is rapidly regaining health, and has entirely discarded the employment of drugs.

One quart of Mr. C. Rayment's Scotch oatmeal should be thrown into the two-gallon pot, which is to be gradually filled with boiling water, a little cold being first used, merely to divide the grains. The saucepan

is then placed on the fire, and its contents are to be briskly stirred until the liquid has *boiled* for ten minutes. After this, it may be put where it will only just simmer; and, in one hour, the gruel will be ready, or in shorter time, should the fire be fierce. The liquid is then poured through a sieve, or should the steed be excessively exhausted, the gruel may be mixed with one quart of sound ale and with half a pound of sugar. The solid part is mingled, while hot, with an equal quantity of bran, and this mixture, having been closely covered, is placed in the manger half an hour after the gruel has been imbibed.

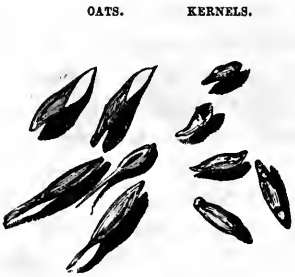
Some horses, however, purge when brought home after a long fast. Such animals are generally of a loose and weakly constitution. For creatures of this description the bran would prove injurious, and an additional pint of meal had better be boiled in a quart of water, which, when mixed with the solid from which the gruel has been strained, will constitute a moist and highly nutritious diet for a delicate horse. The author has, for experiment, tried this form of food upon several quadrupeds, which he was assured abhorred everything like mash or gruel; but only in one instance was the preparation not eagerly consumed. In the exceptional case it was not entirely rejected, being partly eaten; but the writer suspects the apparently dainty quadruped had been previously supplied with a more than usual quantity of oats, as the behavior rather testified to want of appetite than denoted any positive dislike of the nourishment which was before the animal.

Besides hay, corn is commonly used in this country as a food for horses. The corn of the English stable is almost confined to oats. In foreign lands various substances are employed. General, however, as the adoption of oats may be in this kingdom, few, very few persons, beyond the limits of the corn market, have any distinct notion concerning this kind of grain. With the vast majority an oat is an oat, and all oats are of one kind. In exceptional cases, gentlemen are partial to oats of some particular hue. Certain persons will purchase only a black oat; another class prefer a full golden tint, to distinguish the kind they favor; while a few admire a whiteness of husk. Such differences, however, do not affect the grain; the colors are limited to the chaff—the kernels of all are of one tint.

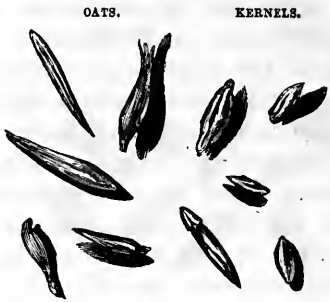
The kernel, or the mealy substance of oats, differs in each variety of corn. One sample shall be thick in the husk, and possessed of a superabundance of beard; but the body of such corn will be narrow, also of contrasting sizes and of various colors.

The inferior specimens are commonly mixed with other seeds, with pieces of stick and portions of straw, as well as sometimes adulterated by the presence of other grain. These oats may impart a saltish flavor

to the taste; likewise they may have a faint, smoky, or fusty odor. Such corn seldom weighs more than twenty-two pounds to the bushel.

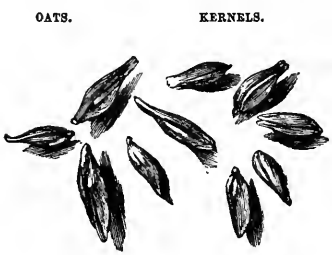


KONISBERG OATS.

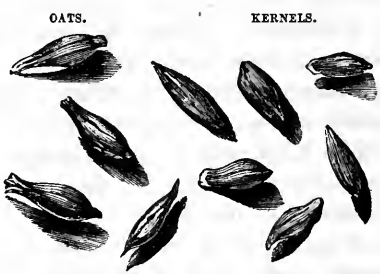


PETERSBURG OATS.

Another sample, of a different country, will rattle briskly as it is poured from the bulk into the palm. Such has a clean aspect and almost a metallic luster. It is full or plump, being positively beardless, and exhibits no more husk than is needed to surround the kernel of such grain. When attentively scrutinized, perhaps no specimen of oats will be found to be all of one size; but no very striking inequalities will catch the attention, when the better sort are viewed. These are entirely tasteless; and do not even suggest the possibility of a scent appertaining to them. Corn of this quality is too valuable not to be carefully harvested; consequently the hardest pressure of the thumb nail leaves no indentation; while the kernel rather chips than tears asunder, when compressed between the teeth.



BEST SCOTCH OATS.

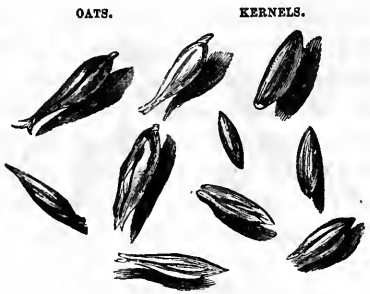


ENGLISH OATS, FROM CANADIAN SEED.

The absence of beard, however, is not an invariable sign of excellence: if the weight per bushel be heavy, this feature should not be too strongly insisted upon. Some good corn is distinguished by a greater length of husk than is requisite simply to surround the kernel; but such

atones for this peculiarity by the bulk of the grain. It is true that a sample of this kind seldom attains to the highest weight, and the purchaser loses somewhat by an excess of chaff.

NEW IRISH FEED OATS.



FIRST CLASS SWEDES.

Yet in England, which country on the continent is esteemed to be a land of horses, very few stables are supplied with other grain than that of an inferior description. The better kind is bought by the miller and the trainer of racers or hunters. The inferiority of most corn, however, seems not to disturb domestic tranquillity. The majority of proprietors open an account with some neighboring chandler, and the groom is empowered to fetch the provender, which the horses are supposed to consume. Dealers in grain do not enjoy unsullied reputations. It is a custom with grooms to exact ten or five per cent. on all the master's bills which refer to the stable. The gentleman, therefore, always purchases his fodder very dearly, where such an arrangement exists.

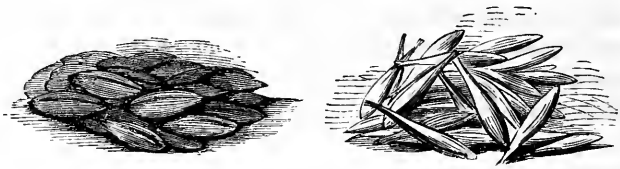
Oats should never be bought by measurement, but should invariably be purchased by weight. A prime sample will weigh forty-eight pounds to the bushel; whereas the author has heard of, although he does not pretend to have seen, oats so very light that the same bulk was only equivalent to sixteen pounds. However, a grain which is professed merely to reach twenty-two pounds is to be met with in every market.

The difference of weight should be more than accompanied by an equivalent diminution of price: because a prime oat of forty-eight pounds will yield thirty-six pounds of pure grain, after the chaff has been removed. A fair oat gives half its weight of kernel; but an excellent sample will afford three-quarters of its entire weight in prime nutritious substance; whereas a poor specimen will produce no more than eight pounds of clean corn to the bushel measure!

Consequently, supposing a choice sample to sell for thirty-six shillings, the inferior article can be worth only eight shillings the quarter; for no man can esteem the husk as a food suitable for any living creat-

ure, nor would any person purchase such utter refuse, even at the fraction of a penny per pound. Cheapness, in such particulars, is therefore very far from the truest economy.

Most chandlers do not keep the better specimens of oats. With the majority, thirty-six pounds is about the prime standard. As a proof of the correctness of the above assertion, the author, a few months ago, visited a friend, and being grieved to see that the best price was paid for an inferior oat, he purposed to call on all the neighboring dealers in corn, inquiring for grain of only forty pounds weight. Even this the writer was unable to obtain—all naming thirty-six pounds as the gravity of the highest article which they had in stock. The gentleman, therefore, who determines to procure only the choicest corn, must purchase of some large and respectable retail dealer. Should any chandler assert the impossibility of his obtaining the heavier kind of grain, let the gentleman at once seek some tradesman who has dealings at the Corn Exchange, where any quantity of any species of grain can at all times be secured, without further trouble than usually attends upon business transactions.

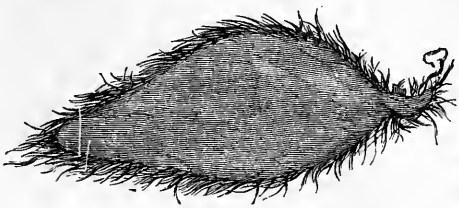


HEAVY AND LIGHT OATS AS EACH LIES IN THE MEASURE.

The animal is doubly defrauded where poor corn is served out by measure. The grain, in the first place, contains less nourishment; in the next place, the solid bulk is not the same; because the husks not only occupy more space, for, by acting as props to one another, frequently clear cavities are formed. Therefore, were the light and the heavy corns, required to fill a given measure, to be counted, probably no vast difference would be discovered in their number. The reader must, however, himself determine how far it is possible for a horse to be cheated, without the master suffering from the fraud in its effect.

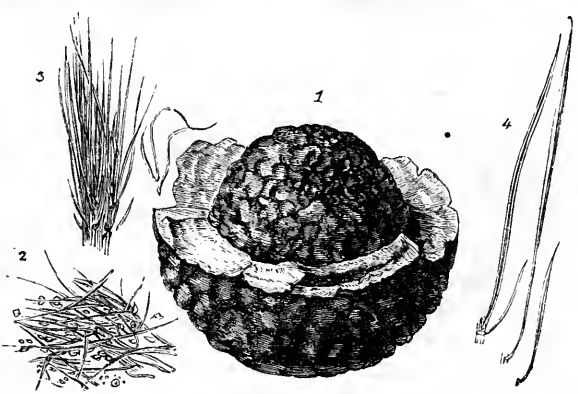
Further injury is inflicted by permitting the quadruped to consume only an inferior corn. Whoever will carefully examine the drawings of oats given in the present division of the book, can hardly fail to remark that the denuded kernels appear of a size disproportioned to that represented as the dimensions of the perfect grain. The microscope makes plain the source of this apparent disparity. The epidermis or the covering of the kernel is coated with numerous fine hairs, which are too small to be perceptible to the unaided vision. These hairs are closely

compressed when surrounded by the natural envelope; but when released from the husk, the hairs expand, and thus occasion the naked eye to behold something far too large for the case from which it has recently been released.



A MAGNIFIED ENGLISH OAT.

In the inferior sorts, the hairs are rather longer, and likewise more numerous, than in the better kind of corn; while, of course, the covering, according to the smallness of the grain, becomes serious, when regarded as a proportionate weight of the whole. These diminutive hairs are perfectly indigestible and entirely indestructible when taken into the stomach. The peristaltic action releases them from the surface of the kernel; being set free, they are frequently felted together by the moisture and rolling motion of the stomach. However small the hairs may be separately, nevertheless by their union they form masses of immense size, provoking such serious impactment as often leads to a terrible and



ILLUSTRATIONS OF THE OAT HAIR CALCULUS. COPIED FROM THE INTERESTING WORK ON CONCRETIONS, BY PROFESSOR MORTON.

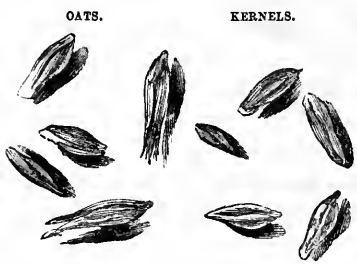
1. A section of an Oat Hair Calculus. 2. Magnified hairs, mixed with crystals of the phosphates. 3. Hairs, further magnified. 4. Hairs, so enlarged as to display their bulbous insertions and curved forms.

a fatal issue. A further reason, therefore, exists for employing good grain in the possibility of such accumulations, the true nature of which

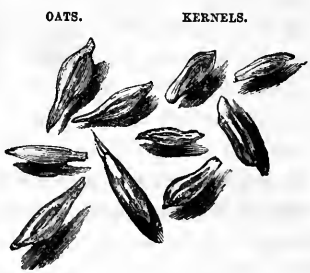
was first pointed out by Professor Morton, and by that learned gentleman these concretions were appropriately designated **Oat Hair Calculi.**

It has long been known that digestion is promoted by crushing the corn before placing it in the manger. This custom, as a part of the proper process, cannot be too highly commended. But careless horse owners sometimes purchase the stable provender in a crushed state, or send to have this process performed elsewhere than on their own premises. Such habits are strongly objected to; the horse is surrounded by so much dishonesty, that a prudent man is not justified in trusting the animal's food to the possibility of exchange or of adulteration.

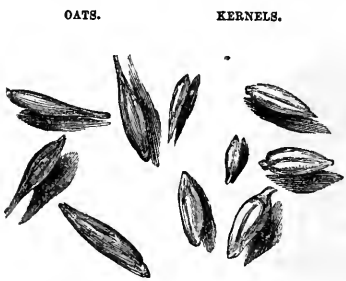
To convey to the reader a definite notion of the very different characters impressed upon various samples of oats, the following illustrations of a few of those which were kindly supplied by a wholesale firm, transacting business at the Corn Exchange, are here presented.



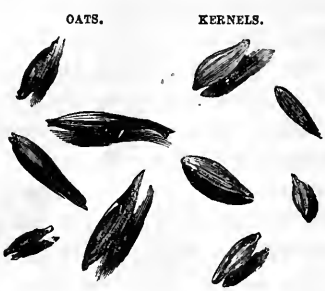
IRISH OATS. BLEACHED.



SCOTCH OATS. SECOND QUALITY.



KILN-DRIED DANISH OATS.



FINLAND BLACK OATS.

A horse owner should invariably have all corn crushed and chaff cut on his premises. The necessary machines are well known, and will soon repay their cost. New grain will not break or crush, but will rather leave the mill flattened or bruised. Corn of this description is easily told by its being soft and yielding; also by its retaining the mark made

by the pressure of the thumb nail. Should that test not be perfectly satisfactory, a convincing proof is soon obtained by placing the suspected grain between the teeth. A sound oat should be dry and hard: it should almost chip asunder, and not be torn or broken into pieces by compression. In the autumn months, great care is needed to procure sound corn; the non-professional purchaser is, perhaps, best protected, when he deals for such an article with responsible trades-people, who, in their business, have a character to sacrifice.

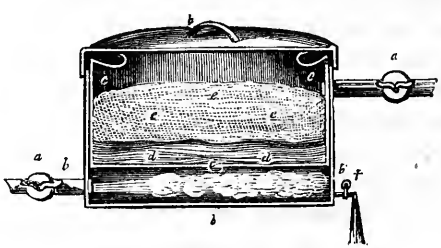
ENGLISH FEED.

It is a custom to expel the moisture from new grain by drying it in a kiln. It is thereby, in some degree, improved; but it cannot be said to be rendered as wholesome as sound corn, hardened by the natural process. Moreover, oats badly harvested or damaged by wet are frequently placed in the kiln, where they are exposed to the sulphur, in order to change or amend their color. The husks, however, at the conclusion of the process, are seldom all of one tint. If closely examined, indications of the original defect may be discovered on some grains, while others will be of an unnatural whiteness. Kiln-dried oats sometimes betray a shriveled aspect on that part which is near to the beard, such puckering being occasioned by the sudden expulsion of much dampness from the interior. The best test, however, is the rapid rubbing of the sample between the palms of the heated hands; when, should sulphur have been employed, its peculiar odor will be developed.

The author has been thus careful in describing the signs which declare the presence of sulphur, because that mineral, although much employed by ordinary farriers, can occasion the most terrible belly-ache, gripes, fret, or spasms. This affection is one of the most fearful to which the horse is subject, and is the more to be dreaded, as it too often leads to other complications. Perhaps a greater number of animals annually perish through causes resulting from spasms, than die under any other equine ailment.

Healthy corn, having been bruised, is not even then properly prepared for the equine digestion. The stomach of the horse is a delicate membraneous sac, which is easily perforated or ruptured. It has no provision suited to digest hard corn, neither are the teeth of the animal fitted to masticate so resistant a substance. Unlike the similar organs in man, the equine tooth is destined to wear by attrition, and anything calculated to hasten that process equally diminished the existence of the animal. The inappropriateness of the stable and its food must be the reason why English horses are so lamentably short lived. The quadruped was, according to the briefest calculation, designed to exist for forty years; but the majority in this country cease to breathe before they attain the sixth birthday. How much money is thereby sacrificed! How much barbarity is by this lamentable mortality proved to exist! What a terrible amount of unmerited abuse must be yearly perpetrated! What a lack of appreciation of the Creator's goodness is exemplified by the cruelty which thus shortens the duration of His choicest gift to the human race!

Prior to the grain being placed before the horse, it should be softened. Where a building is heated by steam, the accomplishment of this would always be at command. Let each feed of corn and every portion of hay, whether cut into chaff or not, be cooked by being exposed to the action of the vapor for a couple of hours. Moisture, in the form of steam, is



APPARATUS FOR PREPARING HORSES' FOOD.

a a. Pipes, having stop-cocks to regulate the steam and to allow it to circulate when the boiler is not employed.
b b, b b. An iron pot, having a close-fitting lid, but pierced to admit the steam pipes.
c c. A shifting interior case, made with a perforated bottom.
d d. A layer of straw or of hay to prevent the crushed grain clogging the openings.
e e e. The broken corn undergoing the process of being prepared.
f. A small tap to drain off the condensed fluid.

known to be very penetrating; and the ingredients of the manger, when thus prepared, are always more relished than in the raw condition, while the liquid which drains from the provender will prove a highly grateful and a most nutritious beverage to the tired quadruped.

Hard substances taken into the stomach of a horse are well known to

derange the animal's system—a fact which has long been proved to the horse-copers and other rogues who live by imposition. A pound of shot will, for a time, conceal the peculiar breathing characteristic of broken wind, though this temporary escape from an outward symptom of disease is often followed by disastrous consequences. Hard grain, if fired from a rifle, would prove no contemptible missile; much of it is bolted by the quadruped before which it is cast, and consequently passes out of the body undigested. The actions of sparrows and the luxuriant green crops which often adorn the tops of dunghills are both evidences of the waste attending the ordinary mode of feeding.

General, all but universal, as the employment of oats may be in this kingdom, very few of Her Britannic Majesty's subjects have the remotest idea of the use which this corn subserves in the animal economy. Drivers will stop, when proceeding upon long journeys, and order their nags large feeds of oats, to enable them to complete the distance, or, in other words, to aid the muscular power. Corn, however, is now ascertained to generate only fat, which rather detracts from than favors the development of motor energy. It certainly sounds strangely, after the expenditure of millions of money, after ages of experience, and after the training of horses was thought to have been fostered into a science, to hear it broadly asserted that the purpose and end attained by the administration of England's favorite feed for horses is totally mistaken! Such, however, is the unvarnished truth; the gallops or the sweats that frequently injure animals while in training are no more than the efforts of ignorance to remove those consequences which its own acts have occasioned. They are attempts to get rid of the fat, which the employment of much corn has naturally produced.

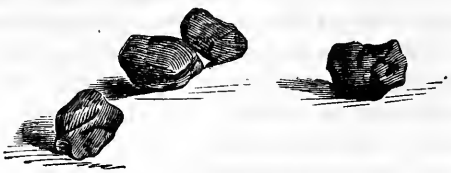
Besides oats, however, beans are used in the best stables; but there is much dispute as to the quantity which a horse can advantageously consume. The English field bean should always be hardened by age

ENGLISH BEANS—A GOOD SAMPLE.

before it is suited for the manger; even then, it should be prepared; for a substance which, when rattled in a measure, emits a sound like to that produced by so many pebbles striking one against the other, can hardly be in a condition proper for comminution between most sensitive and highly-organized members. They should be crushed and subjected to

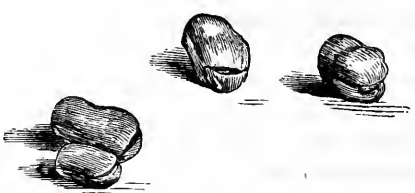
the action of steam, which will, in a couple of hours, remove the objectionable quality without reducing them to a watery mass.

Horse beans, as grown in England, however, are very coarse and astringent substances. No wonder if the large employment of such produce is found to act upon the bowels; surprise should be expressed if so



ENGLISH BEANS—A BAD SAMPLE.

harsh a food could be consumed without inducing constipation. The Egyptian bean, nevertheless, is free from such objectionable properties,



EGYPTIAN BEANS—A GOOD SAMPLE.

being mild and sweet. The author thinks a larger quantity of this crushed and moistened seed might be with benefit presented to the animal. As at present imported, however, it is very imperfectly harvested. Most samples exhibit the shriveled and the discolored skin, which de-

EGYPTIAN BEANS—A BAD SAMPLE.

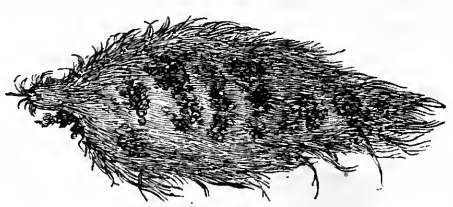
notes the sickle was resorted to before the plant was matured—an error perfectly inexcusable in a climate which is for nine months of the year free from rain.

Might not some sound Egyptian beans be procured; from these could not a milder and better species of bean be raised in this country? The

field pea is open to the same condemnation; but field peas are not generally employed in stables. Those used for horses are small and white, of foreign growth, and quite unobjectionable. Tares are given only to farm teams; but if this plant possesses only a tithe part of those virtues for which it is accredited, its employment might be advantageously extended. Why should hay be made only of grass which, though admirable sustenance for the bovine tribe, evidently is not equally suited to the equine species? The dropsy of the abdomen and legs it induces in nags, together with the foulness of coat which it engenders, are perhaps the best evidence of the injury that attends the long employment of green grass, or even of hay, as a solitary sustenance.

Might not beans, peas, and other leguminous substances be sown broadcast, and mown when in flower? Hay thus produced would be of all value in the stable, because grass, like corn, whether exhibited green or dry, simply induces fat; whereas leguminous plants all favor the development of muscular fiber or support the strength of the body. Such hay might be charged a little higher; but then its feeding value and its worth as a promoter of condition would far more than recompense any extra money at which it might be charged.

It may be asked why, if hay produces fat, are the horses of the poor so lamentably lean, since such quadrupeds receive little else than hay to sustain them? The reasons are numerous. The hay such horses obtain is not often of a good quality; and it is to be feared the stuff is not, frequently, presented in sufficient quantity to promote obesity. Besides, this substance leaves the muscular power unrefreshed. The frame being exhausted by a life passed in exertion, the body's weakness effectually counteracts all tendency to fatten.

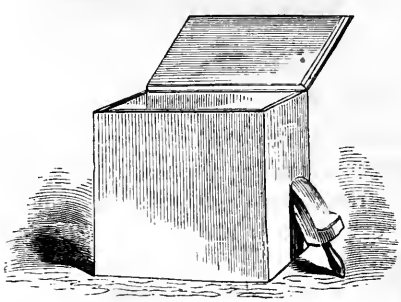


A MAGNIFIED MUSTY OAT.

Beans are not known to be much exposed to deterioration; but oats are liable to an affection of the epidermis or of the skin, which causes them to be covered with little granules of a dark color, which the microscope discovers to be fungoid growths resembling a species of very minute toadstools. Corn, when in this condition, is readily recognized by a very powerful musty smell; and the grain, of course, is not adapted

to nourish any animal. Musty provender is supposed to engender worms and other unpleasantnesses; but the author is disposed to attribute the production of the parasites to a want of resistance in the system, which may be inherited, or spring from a sickly state of the body, or which may be produced by the consumption of unwholesome diet.

Another advantage which is attendant on the employment of heat and moisture is that, by its operation, the unwholesome nature of food, if not absolutely corrected, is greatly ameliorated. The horse proprietor is thus, in some measure, protected from those accidents to which every stable is liable where a stud-groom does not preside over the establishment, or where the owner is not remarkable for activity. The benefit resulting from heat may, in a certain measure, be secured where no steaming apparatus exists; but then two stout closely-shutting boxes of galvanized iron and a scoop, together with a large kettle, are required.



MACERATING BOX AND SCOOP.

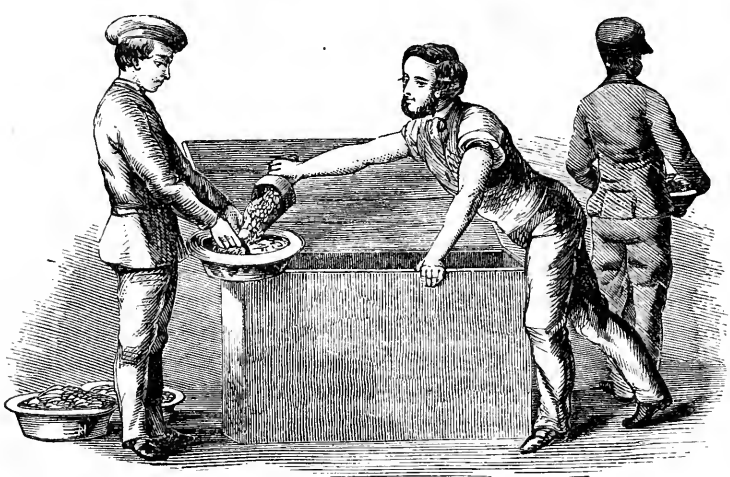
The food is placed in one of the receptacles; then so much boiling water should be poured upon it as experience has ascertained will be entirely absorbed. This done, the lid is closed, and the confined steam will partially cook the provender. The need for two boxes is to allow the hay, chaff, or grain to remain for a longer period subjected to the moisture, so that these substances may be thoroughly softened. This, however, is a more troublesome method, and the mode does not equal, in its results, the employment of steam where the vapor can be commanded; but, whichever practice is adopted, the following regulations should always be observed when the horses are fed.

The mangers intended for the reception of softened provender must be of a peculiar construction. The feeding compartment should possess a lid, which may be let down when the manger is removed. This last should always be taken out of the stable after it has been emptied; the interior should, at each removal, be thoroughly cleansed. The form of

the receptacle should, in some measure, resemble a large pudding dish, and should offer no sharp angles, where the moist provender may accumulate and turn unpleasantly acid. A broad rim should surround the hollow, into which rim should be let two movable handles, the use of which is to expedite the manger being carried from place to place. The substance ought to consist of galvanized iron, but the interior may advantageously be coated with enamel.

IRON DISH OR MOVABLE MANGER FOR HORSES' FOOD.

Such an article, when placed in the wooden frame adapted to receive it, would be supported by its rim and kept by its own weight in the proper situation. When taken thence, it ought to be carried to the



GIVING OUT THE MACERATED FOOD.

pump and cleansed, after which it is lodged in the provender house. When feeding time comes round, two helpers or stable-boys wheel two

barrows to the door of the building and there wait. The head groom, attended by two others, enters the room, and with the scoop serves out the provender, each groom by turns holding a manger to be filled.

As the basins are loaded, these are arranged on the barrows; when the macerating box has been emptied, the grooms and helpers proceed upon their rounds. As each barrow stops before a door, the man who wheels it goes to the outside of the building, and, pulling a string, thereby raises the lid of the manger. He next proceeds to the entrance, and, having undone the fastenings, stands ready to admit the groom on his approach. This being done, the lower half is closed, and only opened again to allow of the groom's egress.

CARRYING THE FOOD ROUND TO THE STABLES.

Where a horse, of a known restless or ravenous habit, is confined, an external slide affords the means of supplying food. The manger, in such a box, should be replaced after it has been cleansed; for, as it is then empty, the food cannot be lost in consequence of the impatient hunger or of the nervousness of the animal. When the feeding hour comes round, the lid of the receptacle having been raised by pulling at the string, the shutter is lifted up and the provender shot through the open space. The steamed oats and chaff are not absolutely wet. The condition is rather less sticky than the same bulk of brewers' grains. The substance, therefore, would readily fall down into the manger; but, as this mode necessitates that the incline be constantly scraped and cleaned,

it is not, because extra trouble is enforced by it, recommended for general adoption.

Thus, without that excitement, delay, and ill humor which too frequently distinguishes feeding time in large establishments, each horse may be speedily supplied. All needed is a little drilling by the head groom, so each man may understand his office: that when fulfilling it, no one may obstruct the path of his fellow. The steaming or maceration of food may, by certain readers, be imagined to have originated in a desire to write *pretty* about horses. The author denies such a motive. Besides, the plan has no pretense to originality. It has for many years been practiced: but not in *high-class* stables. The writer, however, had an inducement, in truth, to recommend its general adoption, and, therefore, to some portion of the implied charge he may plead "guilty."

All horse owners bitterly complain of the expense involved in the support of an animal. Nor is this surprising, when it is considered that one-half of its provender passes through the body of the animal undigested, being no more than so much material literally wasted; while a great portion of the remainder, though dearly purchased, is absolutely without nutriment. As a matter of economy, nothing should be placed in the manger which is not fit to be appropriated, or is not proper to nourish the strength. Such is the purpose of food: that is not food which does not feed, although, like the clay balls of the American Indian, it may be swallowed under the promptings of appetite; for when received into the stomach, like the substance alluded to, it probably will engender disorder.

Improper articles, therefore, presented as food, are in a double sense extravagant. In the first place, they do not sustain the life; in the second place, they entail the expense and loss of service which are inseparable from disease. Whether with horse or with man, everything offered as food should do more than merely appease the appetite. Unless it also uphold the vigor, devouring it is to waste the substance; and whatever adapts provender to the requirements of the digestion, cannot in reason be esteemed either extravagant or unnecessary. Of course, prepared food entails trouble. It cannot be forked into a rack or tossed into a manger speedily and without soil to the garments. There are plenty of reasons why grooms should cling to "hard meat;" and why this class of servants should object to prepared fodder.

Grooms, however, as generally treated, are most exceptionable domestics. Other servants are occupied throughout the day. The stable attendant turns the key upon the day's duties at six o'clock in the evening. He is the most wasteful and costly of all the servants in or

about the house. He wastes even that which Heaven has supplied in the greatest abundance. He wastes the air; since, to obtain warmth, he will not permit the horse to breathe other than atmosphere contaminated by the creature's excretions. He wastes the quadruped's strength; since he works it out of season, and is pleased to view the limbs, when not in action, "cribbed and confined" within the narrow limits of a stall. He upholds every abuse. He is opposed to every improvement. The sum which a fashionable groom costs his master is not to be estimated by the money paid to the individual as wages.

Hay, oats, and beans constitute the horse's daily sustenance. These articles are quickly measured out, and do not soil the hand which apportions them. No doubt the groom will resist any change in so convenient a diet; but the subject, as it at present stands, concerns the liking of no person. It simply involves a moral duty. Nature has sent food in abundance and in variety. Is man justified, when he opposes nature's obvious intention? When he first imprisons a life, and then dooms it to subsist for the period of its being on a monotony of provender, does he act rightly or wisely? What motive can be urged strong enough to warrant the pigmy in placing his insignificance between the creature and the liberality of the Creator?

Horses are not confined to England. Elsewhere the quadrupeds thrive on other food than hay, oats, and beans. The Arab, which stands first among the tribe, and is by some writers recognized as the original of the species, thrives on barley and on chopped straw. The American breed rarely taste oats, being fed on Indian-corn; as, likewise, are many animals inhabiting the south of Germany. Damaged wheat is eaten by agricultural teams all over the world. Rye is given as a supporting diet, when long journeys are traveled in Russia. In India, the cavalry charger exists chiefly on a grain called "gram." In Ireland, the general feed is raw potatoes. In Iceland, dried fish is employed as provender; while during the needy period of the Crimean campaign, the English horses devoured the tails of their stable associates.

England, however, can supply or can import all the articles enumerated. Why, therefore, are oats preferred as the fittest food for horses? The kernel of this grain is covered by a solid coat of chaff. That chaff adds to the weight of the corn, and is charged to the purchaser as so much nutritious matter. It is not supporting; but it occupies space when first taken into the stomach. That space allows the dried kernels to swell without occasioning inconvenience to the animal; for the same moisture which enlarges the oat, also softens the husk, and allows it to be compressed with little absolute force.

As dry food, given separately, oats no doubt are the most wholesome

provender for horses. Barley, rye, or wheat, if dry, would require a proportion of chaff to be mixed with those grains, so as to render either of them safe. Few things are more common in agricultural districts, than for animals to be injured by eating the latter kind of food. Quadrupeds often break loose, and gorge upon wheat; when the cereal, swelling after it has been swallowed, not unseldom ruptures the stomach and destroys the life. All dried grain should be moistened before it is placed in the manger. When properly soaked, barley, wheat, or rye are more wholesome than oats. Mingled with chaff, they are quite as beneficial, even when administered in the dried state. They are, moreover, when regarded in the view of weight for weight of nutriment, far cheaper than the vast majority of England's favorite provender.

Might not the ship biscuit, which is now used only as a food for dogs, be profitably employed in the stable? It contains no husk. Its surface is not surrounded by dangerous hairs. It is all nutriment; and, being slightly moistened by the action of steam, would doubtless be consumed with avidity, after the first distaste, natural to timidity, had been overcome. This species of provender would be cheaper than the raw, hard, and unprepared grain, which might with advantage be superseded by crushed biscuit mingled with a proportion of chaff.

The action of heat is well known to change the nature of corn, while fermentation converts the starch of the raw seed into sugar. Might not a coarse kind of bread be made for the stable? This is no whim of the author's imagination. Such a plan is common throughout Germany, where it is not unusual to see a carter feeding himself and steed off the same loaf. The groom might possibly resist such an innovation upon his rights and leisure; but a better order of dependents could be found, to whom the extra labor would merely prove a pastime.

Besides bread and biscuits, there are various roots which might prove very acceptable to a vegetable eater. The digestion of all such articles is promoted by the substances being cooked before they are presented. The fire extracts much of the water with which they all abound; heat also, in some measure, arrests the tendency to ferment. Why should such simple and natural food be denied to the creature which nature has sent upon this earth with an appetite fitted to consume it? There is ample room for choice in the list which has been indicated; so far as experiment has hitherto tested the value of such articles of food for horses, results have been obtained which seem to say the change might be generally adopted without danger.

A sameness of diet is known to derange the human stomach. Under such a system, the palate loses its relish, while a loathing is excited which destroys appetite. How often do grooms complain of certain

animals being bad feeders! May not such disinclination for sustenance be no more than the disgust engendered by a constant absence of variety? Is there any large stable in the kingdom where one or more quadrupeds are not equally notorious for being ravenous feeders? The disinclination for the necessary sustenance and the morbid desire for an excess of nutriment are alike symptoms of deranged digestion. Some horses will devour large quantities of earth,—stones, *worms*, and all. Other animals will, if not muzzled, consume the litter of their stalls, no matter how tainted or filthy it may be. Strange tastes and unnatural likings are not unfrequently displayed by the inhabitants of the stable, among which, the instances cited are only the most common, all such whims being declarative of a diseased stomach.

The stable, its management, its formation, and its food, do further injury than merely to derange the digestion. Such may be its primary effect; but the stomach is to the animal as the root is to the plant. Through it all the nourishment is absorbed. By its healthful operation, the trunk, limbs, and strength are maintained. The rootlets cannot be diseased without the remotest twigs drooping and withering. So the deranged digestion induced by the modern stable leads to those fearful results which render life valueless; and which would terminate the existence, were the event not anticipated by the office of the knacker. Cribbing, weaving, quidding, surfeit, inflamed thorax, bowel complaints, broken wind, glanders, diseases of the legs and of the feet, with the majority of those injuries which are complacently recognized as accidents, may all be directly traced to that domestication which assumes a right to dictate how a life shall exist; the atmosphere it shall breathe; the space it shall occupy; and the substances it shall eat. Heaven, when this earth was first inhabited, did not create beings without investing them with rights, which man cannot abrogate at his convenience or set aside at his pleasure.

Of late years a class of traders has sprung up who profess to sell "patent foods," or nostrums, which are to be cast into the manger with the corn. The economy and the marvelous effects of these secret preparations are loudly trumpeted; and from the numbers who now deal in such articles, these persons evidently find many customers. The mixtures consist of certain seeds and spices, which, in consequence of a relish being given to the monotony of manger diet, are eagerly devoured. They may even stimulate a false appetite; but, after a time, this effect will cease, and a loathing greater than the previous excitement will succeed. It is not, therefore, with surprise that the author hears of people, once very enthusiastic admirers of such additions, having, after some experience, relinquished these foreign aids to provender.

After all, "patent foods" contain matter which is as old as the hills. Grooms and coachmen have, for a longer period than is to be reached by the memory of man, had a confiding faith in certain charms, or nostrums. Such innocent people have long held secrets for working wonders—either by improving the coat, promoting condition, or creating spirit, etc. These mysteries were made up either as balls or powders. So general was this practice that certain veterinary surgeons kept particular articles solely to meet the demands of such customers. These ingredients, which were always retailed to ignorant people, late in the evening and with much secrecy, are, in very many cases, even to particulars, the same as are now the advertised "Blessings to Horse Owners." There is, however, this difference: such things are, at present, purchased by the proprietor, whereas they formerly were secretly procured by the servant. The master esteems it commendable in him to administer such stuffs to his animals; whereas, a few years ago, the retainer was assuredly dismissed from his situation, if not punished, who was detected mixing any substance with the provender of his horses.

With regard to quantity in the matter of diet. All animals are not of one size, neither have all horses the same capacity of stomach. It is usual to measure out so much corn as the allowance proper for a horse, and to toss the quantity into the manger, without paying any attention to the desires of the creature. Such a custom may be extremely convenient; but it is very wasteful. Horses differ quite as much as men do in their appetites. By the common practice, one animal receives more than it requires, while another gets less than satisfies its cravings. Some slight notice of the body's necessities should be insisted upon in those who pretend to comprehend the quadruped; and a master should instruct the servant that a creature endowed with life cannot be justly regarded as a manufacturing machine.

Then, as to the times of feeding. The horse is essentially a creature of the night. Man may shake up the straw and lock the stable door; but he does not, therefore, put the quadruped to sleep. Long hours of watchfulness are apt to generate habits of mischief, as well as lead to many indulgences which are no more than the results of want of employment, or the absence of amusement. The solitary confinement, now popular in prisons, in workhouses, and in some schools, is evidently wrong in principle; more especially wrong is it, when practiced upon children, as loneliness, acting upon immaturity of intelligence, invariably leads to an evil desire, which is, in penal prisons, spoken of as "breaking out."

The horse has to pass twelve hours of weary time awake, without food and without supervision. Why should not one feed, at least, be

given late at night? The present custom, of allowing the stable-man his time after six o'clock, is not beneficial to the servant; nor is it advantageous to a master. It merely encourages habits which are expensive. Expensive habits are not commendable or innoxious, where the weekly income is reckoned by shillings. A little more of wholesome employment would greatly improve the stable-retainer. The man is now corrupt; but those who suffer by his vices, expose him to that temptation which subverts the uprightness of his inclinations. After six, is a better hour for equine exercise than during the heat of the afternoon. Subsequent to the setting of the summer's sun, during the cool, moist time of twilight, the quadruped would delight in being abroad; but, during the hours when nature formed her creature to roam, man, for a servant's convenience, imprisons his slave; and, having perverted every intent or purpose of its existence, complains aloud because the laws of Creation are not made subservient to his perversity!

Could society be rendered a trifle more sympathetic and a little less conceited, horses would largely benefit by such a change in the dispositions of their masters. But this cannot be with present thoughts and existing institutions. The modern age essentially delights in *knowing;* it rather sneers at, than cultivates, *feeling.* England abounds in schools, and is thickly strewn with colleges. Education is much lauded; but the education at present given neglects the higher and the better part of the pupil's mind. Everywhere knowledge is inculcated; nowhere is feeling cultivated. Nay, in the majority of existing educational establishments, the sensations are blunted and the emotions suppressed. Yet to elevate the feelings of its followers, is the purpose and the object of Christianity. Reverends and Dignitaries preside over places where, under pretense of being properly trained, youths are unchristianized. Most young men quit their tutors with the knowledge quickened; but where is the being who began life with the heart improved, or with the moral sense to guide him through the many obligations he was newly called to discharge, upon his becoming a member of this world's society? The horse especially suffers under the consequences which result from the present evil tendency of the community.

To talk of the feelings, the instincts, and the inclinations of the quadruped, is to earn a character for maudlin affectation. The populace in the public highways hourly stare at or carelessly pass spectacles which, were the general mind really educated to understand what is before it, should awaken the keenest commiseration; but which are now viewed as sights that enliven the prospect. Whence is derived such hardness of heart? Whence springs such general and such a deep-rooted insen-

sibility? No man seems capable of interposing a voice of expostulation, when the streets display living and feeling flesh creeping toward its early grave; when he beholds the animal driven slowly to death; when he looks upon an animated being, so worn and so dejected that it is the last office of humanity to summon the knacker to end a hopeless misery. The existence of a Society, with two constables, poorly counterbalances a national display of spurs and of whips. The foremost humanitarian, so the skin be whole, can afford to gaze upon a lean and spiritless horse, tired beyond man's most exaggerated conception of fatigue, slowly creeping before some over-burdened cart, while the driver, whip in hand, adds his weight to the disproportionate load. Misery in front, brutality behind, and hard-heartedness around; while a fellow-inhabitant of earth totters onward to its death!

Yet, how universal is the lamentation about "the instability of the horse's health," and "the uncertainty of equine life!" Knowing what stables are, and having learned the air, the food, and the exercise allowed to maintain a horse's existence, is there any just occasion for appealing to sympathy, because a life, maltreated in every essential, generally droops before the fate which abuse provoked? Forced into early toil; never seen abroad without the goad by its side; worked to the point of convenience, and nourished according to the dictates of economy,—is it wonderful that the majority of horses perish before their youth is matured? Is it not rather a justifiable reason for surprise that a country should boast of its morality, should exalt its civilization, should vaunt its Christian feeling—and, nevertheless, that its inhabitants should tacitly combine to practice the grossest inhumanity upon the meekest type of earthly sensibility?

CHAPTER VI.

THE EVILS WHICH ARE OCCASIONED BY MODERN STABLES.

Those gentlemen who have deeply studied such subjects, assert that man is incapable of originating a single idea. Certainly an intelligent being would not have been required to originate anything if, when intending to confine an active animal, he had been expected to credit the joyous creature with the common attributes of life. It could have evinced no excessive servility if, before the building was raised for such a purpose, nature and her requirements had been, in some slight measure, considered.

It obviously is folly for mortal pride to contend against those ordinizations which govern the universe. However, in the case of exercising power over the horse, centuries of defeat and ages of loss seem incapable of causing mankind to relinquish a hopeless struggle. The strife has been going forward almost from the commencement of time; nevertheless, human beings, though always beaten, press onward to perpetuate the contest. They scorn to retreat, and will suffer rather than own a victor; they will not, to make an advantageous peace, desert a silly custom or discard an ancient usage. They can sustain punishment; they can endure chastisement; but, like land crabs, when once upon the march, they cannot deviate from the line which they have adopted. They can abuse the master, but they cannot listen to the instructor. "Nature," men exclaim in chorus, "is very stubborn." "Horse property," respond another gang of culpables, "is particularly hazardous!"

All this noise, however, might at any moment be avoided, would the human race only stoop to employ a little reflection. Would man not fight quite so obstinately, but merely think over the cause of combat, he might possibly be a gainer in happiness as well as in pocket. Could he only condescend to admit the horse is a living creature, he would take a step toward his recognition of the truth, because a fact would have been acknowledged. This being granted, then let mortals, in their collective capacity, decide in what the lowest proof of life—mere animal existence—does prominently consist.

It does not require any vast expenditure of thought to discover that

life is action; "to be," is synonymous with "to do;" therefore it is a sheer necessity of existence that an animated being must be doing something. Such is the primary consequence of existence. Thus, to breathe and to move, imply one act; since, if the lungs cease to dilate, respiration immediately terminates, and, with it, animation comes to an end. Yet it remained for mortal perversity to rebuke the first principle of established philosophy, when stables were built in which a breathing animal was to be treated as it were an inanimate chattel.

Nature, like a kind mother, is to this day endeavoring to teach her wayward children a plain truth, which they may hourly behold enforced by visible examples. The willful brood appears to be in no hurry to learn. Man still treats the horse as though he honored the quadruped by enslaving it, and ennobled a life by conferring upon the animal the title of his servant. He acts as though, by such conduct, sufficient reason was exhibited why he should oblige the creature to resign its instincts and relinquish its desires.

The equine race, when in a wild state, are gregarious, or congregate in herds. Man captures such a quadruped and places it in a stable, built to enforce the extreme of solitary confinement. The plain is the natural abode of the herd; on their speed depends both their pleasure and their safety. Man ties the domesticated horse to a manger, and pays a groom to enforce absolute stagnation upon innate activity. The "panting steed" is the most timid of living beings. Man insists the charger is possessed of extraordinary courage; he declares it delights in the tumult of battle; and he esteems it a glorious achievement to brutally coerce the timorous sensibility. The mild-eyed horse is, perhaps, the most simple of all the breathing beauties which adorn a wondrous world. Man declares all of the gentle breed have dangerous propensities, and are most inherently vicious.

Before subjugation, the creature fed off the surface of the earth. Man builds a house specially designed for the captive, in which the corn is placed on a level with the chest, and the hay is stationed as high up as the head. The animal is gifted with affections; it longs to gratify their promptings; it yearns for something upon which its abundant love may gush forth,—a fellow-prisoner—a goat—a dog—a cat—a fowl; no matter what, so it be some living object on which may be lavished that excess of tenderness which, confined to its own breast, renders being miserable Man esteems it his primary duty to clear the stable of all possible companionship; but the creature which would rejoice, were it only permitted to worship its enslaver, he rarely approaches without a loud voice, a harsh word, or a harsher blow announcing his presence to the captive.

The inhabitant of such a prison, a domesticated horse miserably drags

through a shortened life, under human *protection*. The nearest approach it can make to freedom is its period of exhausting labor. It always rejoices to quit its confinement; but, enfeebled by imprisonment, and subservient to man's exactions, it ever gladly returns to the place of its sorrow. In proportion as its limbs are finely made and its actions are graceful is it prized. It is never esteemed for its instincts or credited with intelligence. It lives in so limited a space that, in comparison with the dimensions of its abode, a man in a sentry-box dwells in a mansion; or a lion in a cage roams over a domain. A reasonable and an intelligent being commands his horse should be fastened to such a spot, and supposes that a living organism is to endure the confinement which does not permit the body to turn round; that animated functions are to exist where most ordinary exercises are rendered impossible: nevertheless, he anticipates the creature will appear bounding with health in answer to his requirements.

To be sure, the prisoner, although its head be fastened, (a restraint not imposed upon the most savage of carnivorous beasts,) is permitted now to bear upon one leg, and then to change it for the other. It may perhaps lie down or stand up, without provoking chastisement Neither head nor tail are forbid a *proper* degree of motion. But at this point all indulgence is exhausted. It is tied to a rope two yards in length; but it may not go even to the extent of its tether; neither may it move close up to the manger; both acts are equally unpardonable: a *properly* behaved animal should stand quietly in the center of its compartment, and always remain there when not lying down.

It is beaten if its head be raised just to peep over the paling, to exchange a rub of the nose and to give, as well as accept, a warm stream of fragrant breath to and from its nearest fellow-misery. It must taste the full flavor of its captivity: no trivial act may distract attention from the horror of its position. It must lie down where it stands; and stand where it laid down. It must not display the grace and ease of motion with which it has been endowed; nor must it indulge the kindly feelings Providence has gifted it with. To exert the faculties which the ALL-WISE has planted in a beautiful body, man regards as evidence of its vicious disposition; though it has yet to be demonstrated that nature ever bestows any quality without an intention that the gift should be actively employed.

The feelings of the master are more than sympathized in by the groom. A servant's pride always induces him to exaggerate both the virtues and the vices of his employer. What in the superior is a mere anticipation, which gratifies when it becomes realized, in the bosom of the dependent swells to a positive demand, compliance with which it is noble, at every

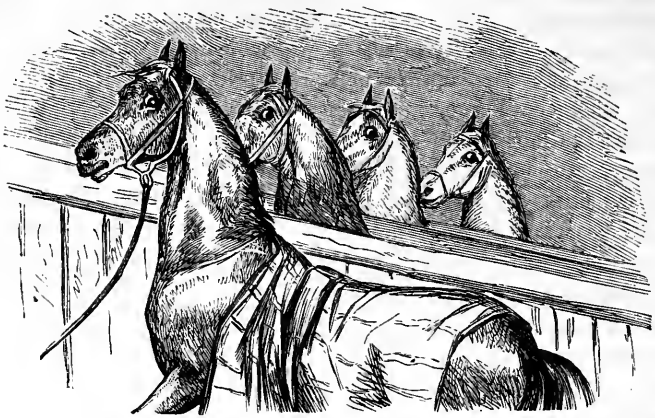
hazard, to insist upon. The man, therefore, permits the cat to pur: but among the horses he is resolved to enforce the extreme of quietude.

The menial does not inquire whether an exquisite adaptation of sight, so as to inspect the minutest particle and to view the most distant object; whether a sensibility of hearing, to which movements are audible, when to the duller perceptions of the proprietor no sound vibrates on the air; whether a keenness of scent which can appreciate qualities in substances that to human sense are devoid of odor; or whether that fleetness of motion, which the Creator permitted as a protection, the ease of which machinery, when urged over common roads, has failed to rival,—the servant does not inquire whether such attributes were given by nature only to be fastened by the head, or to be confined within a space in which absolute stagnation must ultimately induce bodily incapacity. For nature's intentions the groom cares nothing. "He has his doty to discharge and he will do it! Master wishes the osses to be kept quiet on a arternoon; and he's the chap as will see the guv'nor is not disappointed!"

Such a doom can alone be varied by the hours of labor and the periods of feeding. To the animal thus surrounded, recreation is impossible, and its lodging is so small that bodily ease is unattainable. Yet the horse is kept for the use of its limbs; those who have observed the quadruped canter round the field into which it has been newly loosed, know that enjoyment is not incompatible with its existence. No pleasure, however, can be permitted within the stable. There, the slightest rustle or the gentlest indication of motion is jealously noted. Most equestrians like their quadrupeds to be still after feeding; because perfect quietude is supposed to promote digestion and to encourage thrift among the horses. The groom loves silence, because, to his mind, it is so nice and so respectable. Besides, when no sound disturbs the monotony of the building, the groom can luxuriate in the sense of absolute idleness—a feeling which most servants recognize and enjoy. If any sound interferes with the afternoon's luxury, a harsh and taunting shout rebukes the inconsiderate disturber. "Now! Then! There! What ails you?"

The dreaded accents of the tyrant's voice may, for a space, banish the oppression of captivity. The animals, under the influence of newly awakened terror, may be enabled to shrink into absolute silence; but, as the fear fades, the full reality of their position cannot otherwise than be felt in all its horrors. Fed upon stimulating food, how their spirits must languish, and how poignantly the aching limbs must suggest those pleasures there is no prospect of the prisoners ever again enjoying! Every little incident is seized upon with an eagerness which attests the

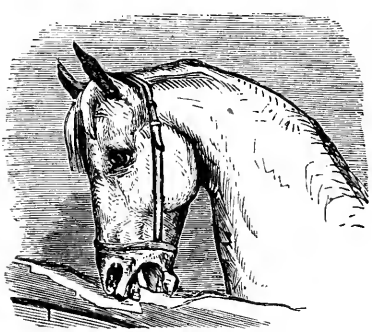
prevalence of utter despair. Should a visitor enter the building, every head is raised and every eye is turned toward the welcome intruder.



A STRANGER HAS ENTERED THE STABLE.

The universal bustle which follows his appearance bespeaks how the lucky arrival has allowed the limbs to be stretched and the positions to be altered. For a moment or two, the straw is in audible commotion, while the sinkers, or blocks fastening the collar reins, may knock against the mangers, and the noise elicits no angry remonstrance.

But as joy hailed his appearance, so does the dullness deepen on the stranger's departure. From that moment, any relaxation becomes a fault. All pastime is unlawful; the most innocent amusement must be practiced silently and in secret. Certain animals, however, try to get through the long hours of enforced idleness by quietly nibbling at the topmost rail of the manger. Large portions of tough wood are often removed after this fashion; and to him who can rightly interpret signs, a thick post bitten away, fiber by fiber, will present melancholy evidence of that longing for employment which could induce so great a waste of perseverance; for animals are naturally great economists of labor.



NIBBLING THE WOOD-WORK.

Other prisoners will endeavor to cheat the time by licking their mangers, apparently in the hope that some stray grain of corn may have

escaped previous attention. The soft tongue of the horse, passed over the hardened surface of the wood, occasions no noise. Often a few grains will have lodged in the corners; then the effort to displace these affords a long game. Others, from want of something to do, or from finding impure air and inactivity do not, in accordance with the general doctrine, promote equine digestion, learn "to crib;" a few, from the operation of the like causes, become perfect as "wind suckers." All "speed the weary hours" as they best can; and many heads are turned round to discover if it be feeding time again; not that they are hungry, but eating is an occupation, and they sadly wish for some employment.

Certain quadrupeds, under these circumstances, adopt a habit, which is the more remarkable because hours of tedium have generated the like indulgence in human beings. Mortals, when compelled to remain stationary, and forced to preserve silence, often strive to kill time by rocking to and fro, or by "see-sawing" their bodies. Such a pitiable excuse for amusement is very common among the little people whose undeveloped limbs are perched on high forms, and in whose hands are fixed very uninteresting primers, from which the infant mind wanders into vacuity during the hours of imprisonment which occur in those abominations termed "Preparatory Schools." The horse, also, when forbidden the pleasures in which nature formed it to delight, will move its head methodically from one side of its stall to the other, and will continue thus engaged for hours together.

So exciting a pastime, most sane people might deem to be harmless enough. It interferes with nobody; if it can amuse the solitude of the creature, it should certainly excite no person besides. But in the arbitrary notions of rectitude entertained within the stable, such a very simple custom is punished as a positive "vice." A horse which "see-saws" is said "to weave," and "weaving" is, by grooms, esteemed highly culpable. What the poor animal is "weaving," no one can point out; but, supposing an idle time to be so creditably employed, "weaving," though not a highly remunerative occupation, nevertheless does not usually entail penal severity upon the offender. But grooms act upon their own convictions, and disregard the general morals of mankind. When a monotonous sound, however gentle, but long continued and regularly repeated, falls upon the ear of watchful ignorance, the awful fact that one of the imprisoned is endeavoring to cheat its misery, causes the lash to be grasped; the smart of a well-directed thong cuts short the melancholy recreation, to inform the captive that its keeper is determined the fullest flavor and the most distant relish of the situation shall be silently appreciated.

The imagination cannot picture a harder fate! Man, under such a

doom, would be relieved by insanity. The horse has few pleasures; but nature makes all life suffer acutely when forced to continue inactive. The creature cannot seek occupation in what young ladies term accomplishments. It has no power to consume its existence in silent study. Like all animal vitality, its delight is to do, and that is the very thing which the groom insists it shall not perform. It can taste no other kind of pleasure. All created beings have some sphere of enjoyment. Activity constitutes that of the equine race; but to prevent an innocent creature knowing the only happy sensation of which its nature is capable, the animal is placed in a compartment; tied up to a manger; while, behind, there sits a man who is specially engaged to chastise the smallest infraction of the prevailing silence of the prison-house.

It remained for human perversity to conceive a life without a pastime, and vexatiously to impose this terrible fate upon the creature whose existence is devoted to man's service. When in the field, the horse is never idle. The only amusement of the simple animal lies in its perpetual occupation. What a despairing sorrow must therefore afflict such an existence, when dragging through its time under the fostering care of the enslaver! Yet how proudly do some intellectual beings boast of their stables and of the ceaseless attention lavished on their studs! What is it this assiduity realizes to the creature on which it is expended? Stagnation to the active, and solitude to the gregarious. Movement draws down punishment, as it were a fault. Any attempt to while away the tedious hours is esteemed "a vice;" sensation must be checked, and feeling, man insists, shall be suppressed. But who, among the millions of intellectual masters, sufficiently understands the quadruped over which they all usurp authority, to regard the huge bulk of that endurance as the embodiment of the acutest form of every possible earthly misery?

To ascertain how far the foregoing remarks are founded upon reason, let it be supposed that man and horse were to change places, though the two animals, not being alike on the score of comprehension, no trial could be exactly equitable. Restlessness of spirit is the invariable attendant upon weakness of intellect. The advantage must, therefore, preponderate upon that side where intelligence might lose a sense of self in the excitement of thought, or where reflection could be amused by passing observation. But, granting all advantages to the human being, be it imagined that, for a single week, man inhabited a stall; shut in from all society; standing on one spot by day, and lying there by night; having the same food and the water brought to him at regular intervals; being obliged to make his meals without turning round; but, all the while, with his nose fastened close to a blank, white wall. After one

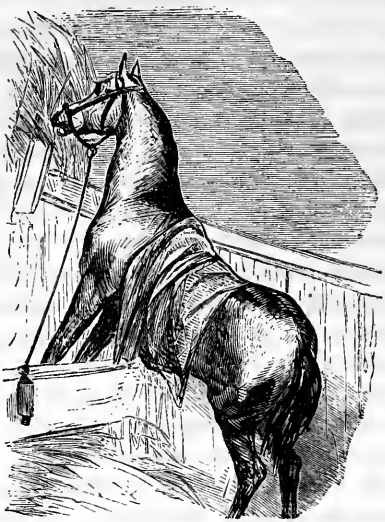
single week of such probation, what does the reader conjecture would be the report delivered by the groom, who sat behind with the whip, ready to enforce silence? In what respect, does imagination picture, would be the distinction between man and horse?

Stable propriety conceives that the dumb inhabitant of such a building is fitly occupied when gazing upon the whitened interior of its prison. It is barely possible that stable-men may think this a most engrossing amusement; but there evidently exist horses which are so naturally perverse as to imagine that sight was, by an all-wise Creator, bestowed for a more active purpose than to merely look at vacancy when at home, and to be blinded by blinkers when abroad. These are, generally, the new-comers. Colts, not thoroughly broken in, or quite inured to the customs of civilized equine existence, are such wayward creatures! In their inexperience, they are too impatient; the first taste of captivity is apt to generate in them a desire to look around, or to gaze on the fellow-beings about them.

Inspired by a feeling of dissatisfaction with the boards which human care has placed on either side of their compartment, these youngsters are likely to gratify the promptings of the moment, by rearing up and by lodging the forefeet within the manger. Their heads are thus raised above the limit of their partitions. Where the corn is commonly thrown, the front hoofs now repose; and, as a consequence, the view instantly becomes more extended. The scene is novel; the exalted quadruped can exchange glances with its companions. The prospect is pleasing, and the sensation it awakens is decidedly gratifying. But, unhappy creature! While its eyes drink in delight, it cannot perceive the angered visage of the groom; nor can it even think of his existence, till the smart of a well-placed lash recalls the sufferer back to the hopelessness of that solitude, under submission to which it can alone hope to escape from positive torture.

This grave offense, like too many human failings, is engendered by idleness. The offending animal was without occupation. Its spirit was sick with inactivity. Therefore, in despair, it indulged that forbidden gratification which most men in their own persons do not view as meriting severe corporal punishment, or find to be a very stimulative amusement, when, to kill time on a rainy day, they glance out of the windows of their apartments. The equine sin was, however, of no greater magnitude; if it could, with strict justice, be said to attain to such lofty dimensions. The culpability, nevertheless, lay in an animal acting as though it had a right to use its own life for its selfish enjoyment. A horse obviously is the property of its master. The title to such property is absolute. The creature, consequently, has no right to act on its own

authority; and to do this, regardless of the peril incurred, is positively contemplative dishonesty, which merited the heaviest possible visitation!



A HORSE WITH THE FORELEGS IN THE MANGER.

The altitude assumed, certainly, was not altogether safe. Mangers are built to merely uphold grain and chaff. Carpenters, in their collective capacity, are a knowing set, and are notorious for manufacturing articles of a strength merely proportioned to their uses. A heavy weight resting on fragile boards might have broken or have displaced some of them. In such a case, the animal having fallen through the opening, probably would, in its fright, have fractured a limb. The inside of its manger, assuredly, did not offer a secure foundation for a steed to stand upon; but, when tracing causes, we are bound to inquire, who or what provoked the act? The chastisement, it is true, has, according to this world's custom, been inflicted upon the weaker and the more simple; but consummation of such an act cannot establish the justice of the usage.

The circumstances of the case presuppose something condemnatory on the part of the horse, the contemplation of whose conduct could excite such indignation in the groom. This fact is further supported by that surprise which mingled with the anger of the man. Even his habitual lassitude was conquered, through the energy aroused by the spectacle of such enormity! His bile boiled; his voice grew indistinct with passion; would excitement have permitted clearness of speech, oaths might have

been overheard; the cat was thrown aside without the smallest show of ceremony; the servant leaped to his feet; with evident determination he seized the whip and essayed to punish the offense.

Discarding inferential evidence, and looking at the case for positive testimony, it may be well, before we engage in such an inquiry, to determine whether the horse has done wrongly, and whether the servant has acted rightly—the conduct of each being temperately reviewed. The quadruped, standing in the manger, and being naturally a timid creature, the sight of a whip and the smart of its application might cause the terrified life to perform several very energetic and eccentric movements. If the animal's fault laid in its mounting on so frail a platform, that, certainly, was a reason which should not have excited the groom to chastisement during the perilous position. Fear often banishes caution, and the exhibition ground of the contention, then, being specially limited, any alarm was calculated to provoke the danger which it was the office, and doubtless the intention, of the groom to dispel. During the struggles caused by sudden fright, hair is often removed and sores established. A horse, surprised by terror, has engendered fearful blemishes; troublesome wounds have been produced, and prominences of bone have been fractured by the wild efforts of timidity, when excited by horror. The horse had no business to stand in the manger; but, being a non-reasoning animal, we may overlook that transgression. The man, however, being an intellectual agent, did very wrong in flogging the steed while the quadruped retained its perilous position.

To beat a horse, admits of justification by appealing to custom; but to flog a horse when tied to a manger and confined to a stall, is certainly gratifying the human passion at the risk of injury to that property which every owner is supposed to possess in the perfect condition of his animal. Now man, being blessed with power to think, violated his duty when he indulged his own instincts at the hazard of harm to his employer, or when he chastised the colt for braving the possibility of injury; since, by so doing, he was guilty of defying the probability of damage, and therefore stands convicted of a worse fault than that for which he punished his charge.

Let us now endeavor to ascertain the real extent of that misdeed the contemplation of which provoked an amount of anger sufficient to banish prudence from among the virtues of a reasonable being. The colt is, in the first place, located and fastened within the stable. The fact certifies to no choice having been exercised on the part of the culprit; therefore it is blameless, so far as being inside a building might imply an error. It was fastened within a defined and an arbitrarily limited department. The animal, however, did not plan the edifice, erect the partitions, or

halter its own head to one of the mangers; consequently, so far it must be esteemed guiltless. But the creature, being there, leaped into a receptacle intended for food, and placed before it, thus obtaining a power of seeing around it.

The last act argues discontent, and discontent has never been ranged with amiable qualities. Still, it is not commendable to be contented, when we possess ability to improve our situation. Eyes certainly are natural gifts; their presence supposes a divine permission that sight should be exercised, since the wish to use them is an innate impulse. Man himself often endures much inconvenience and pays large sums, simply to gratify his eyes with the momentary spectacle of some gorgeous procession. The act, which has never been accused as a crime in the lords of the creation, should not, therefore, be esteemed unpardonable when exemplified by an animal which is occupying an inappropriate position.

Next, let us ask, what excuse can be urged to extenuate a deed which has already been shown to be less than a fault, and to be far removed from the category of crime? The horse is formed by nature with a love of action. In a modern stable it is tied by the head, while the stall partitions are of sufficient height to isolate its misery. The poor quadruped may have stood where it stands for several consecutive hours. The manger is fixed directly before it; the receptacle has been empty some time; the thing is clearly not wanted now to hold food: yet, there the open box remains. The head is tied to it; the animal cannot escape from looking on and into it; till speculation, which concern the possible intention implied by the fixature of the article, takes absolute possession of the equine mind.

At last a bright idea descends; the manger is thought to be placed where it is, as an easy step for the animal's feet to rest upon. The wood-work is situated at a convenient distance from the ground. Man could not have supposed the horse wanted victuals lifted to its mouth, when every field exhibits one of the tribe lowering its head to gather herbage from the earth? Such a notion is ridiculous! The corn must be cast into the manger, simply because the thing is ready to receive it; but its real purpose has only been recently discovered. A slight but pleasing effort raises the forefeet on to the imaginary platform. The creature is delighted with its elevated position, for the view from it is agreeably extended. Assuredly, to discover a new use for an old article, merits esteem; and blame, if any blame be called for, should light on him who has imprudently placed temptation before an idle spirit, believing animal nature to be too passive for any temptation to affect it. Man, therefore, was disappointed by the quadruped proving more intelligent

than he bargained for. The exhibition of intelligence should form no excuse for chastisement, though disappointment is too apt to expend its rage in blows.

There remains, however, to decide whether the act on the horse's part, not being a fault, may be justly esteemed to be a virtue. A dull, phlegmatic beast had slept away the time "between the feedings;" had been content, so no exertion had been demanded. All men abhor what, in stable phraseology, is termed "a slug." It certainly is meritorious to seize every opportunity of displaying that sort of temper which our superiors desire should be presented. All horse owners love a gay, lively, spirited nag. Leaping into the manger was a proof of animation. The act may have violated stable propriety; but the simple nature of the quadruped could not comprehend those regulations which man is incapable of communicating to the equine understanding; therefore the rules of the place were nothing to the captive. The culpability should rest upon him who planned a building with fixtures capable of being readily perverted. Leaping into the manger was certainly commendable, so far as it testified to intelligence, intrepidity, and liveliness. The blame must reside with him who doomed a gregarious creature to solitary existence, and fixed before the prisoner a feeding trough, certainly at an inviting altitude.

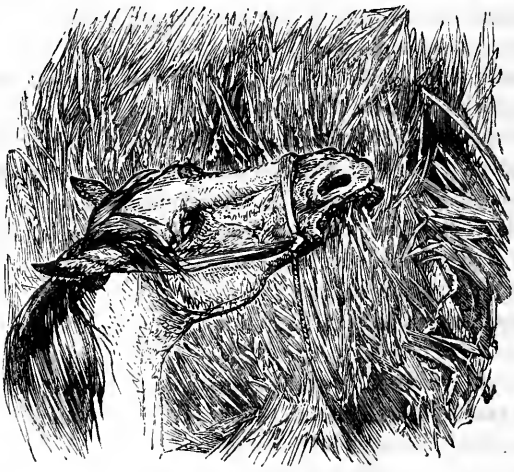
There is another supposed "vice" which animals doomed to lengthened and solitary confinement occasionally exemplify. Some gentlemen own several horses. Those parties possess ranges of stables, and every stall is occupied. When a person has a stud at his command, he is apt to conceive a dislike for riding. Days, and even weeks, may pass without the saddle or the carriage being ordered for the master's gratification. During such a period, the grooms are supposed to give the animals a healthful amount of exercise.

But when superiors neglect their duty, inferiors will probably follow the example. A powerful propensity to imitate is one of the human peculiarities; the truth of this observation is far more vigorously illustrated in the stable than in the mansion. Much time may have gone by since some of the horses sniffed the breeze or looked upon the face of heaven; let the period be still further extended, and the grooms will not complain. The quadrupeds may continue idle, and gorge until their livers burst with disease; but their custodians can never tire of too little employment. When an establishment is thus managed, the grooms do not generally rise till the hour for morning exercise has passed; if a stray thought of the captives should trouble their consciences, the qualm s always quieted with, "Oh! let the poor devils enjoy a long rest."

Breach of one obligation, like the falling of a first brick, is seldom a

solitary mishap. The stable attendant, not being kept strictly to his work, grows to regard his own likings more than to consider his master's orders. These people are always pleased with the exhibition of fat. The proprietor may talk about condition; but the servant knows his master's favorite hunter should carry a "*little*" fat. It looks so gentlemanly to see a horse that is well fed. Every groom has a rare, secret nostrum which will load any animal with fat in a week. He will spend his perquisites to purchase this mysterious powder, a spoonful of which, given in a mash, at night, acts like a charm. At the same time, he serves out the oats and beans pretty generously. He fills the rack, heaps the manger, gives a dose of his secret mixture, and then, slapping the horse under the flank, exclaims, "There, old boy! I think you may enjoy yourself now!"

We are told an alderman was once solicited for halfpence by a crossing-sweeper, because the man was "so hungry." The city magnate paused, looked at his petitioner, and, with feeling, exclaimed, "Lucky dog! I wish I was also hungry." The horse, wanting exercise, stares at the provender, but has no appetite. The food piled up before it is,



A HORSE WASTING THE HAY.

to the animal, no other than "matter out of place." Desire is needed to give value to such abundance; and a non-reasoning being cannot be expected to prize that which it does not require. It cannot eat, but it lacks amusement. The hay is before it. In sheer idleness, a few stalks are pulled from the rack. Of these, one may be leisurely masticated; but the remainder, after having been twisted about by the lips, are allowed

to fall upon the litter. The sport is followed up until the rack is emptied, and the creature is a little happier, under a conviction that it has escaped from absolute stagnation.

Yet, when we consider the heap of "prime upland" which has been spoiled, the subject cannot be allowed to pass without one word of inquiry. Who or what is to blame, when so much fodder is wasted? No animal will prize food after its cravings are appeased. Fowls, having eaten, trample the superabundant barley under foot; dogs will sleep beside, or bury, a half-gnawed bone; nay, man himself, subsequent to a good dinner, nauseates the greasy smell from the kitchen, and abhors the sight of a reeking joint; school-boys form bread seals out of their breakfast superfluity; and domesticated gentlemen, located at the bottom of the table, have, when dinner was finished, been frequently known to amuse their fingers by making crumbs upon the cloth. Then the act of wasting victuals, after satiety has been achieved, being, with various beings, all but universal, the deed cannot be urged as a heavy accusation against a simple animal.

Yet the scattered hay having been observed by the master, the groom then severely punishes the wasteful quadruped. In that case, however, it is the master's observation, which the animal could not possibly prevent, that drew down its chastisement; the blows can establish no fault on the part of the horse. Its stomach being crammed, the creature could eat no more. The hay, however, was converted to some use. It was made to lighten the heavy hours of captivity. Such a purpose may not have fulfilled the proprietor's intention; but it was the only service the captive could put it to. The sin, if there be any sin, certainly must remain with him who piled up provender before an animal which was without an appetite. Waste was indulged when fodder was thus misappropriated; and the horse endured punishment from the hand of the individual who, had strict justice been administered, should have received the lashes on his own person.

Simple natures, when entirely disengaged, generally make their own employment, and that employment, being intended for a passing amusement, commonly consists of what thrifty people designate "mischief." The knowledge that displeasure will follow upon discovery, may spice the proceeding which otherwise might want interest. At all events, so it is with children; and it may be thus with animals. When a heaped manger is before a satiated quadruped, the impossibility of feeding makes the creature meditate upon the uses to which the grain can possibly be applied. None can be discovered. The head of the captive is tied, and the manger is fixed. At length, in carelessness of spirit, a mouthful is taken from the heap. The portion cannot be swallowed, so the lips are

moved, and, as they part, the corn falls over them upon the ground. This may not be a very exciting recreation; but the prisoner is restless with repletion. It cannot sleep; and the grain passing over the lips, in which equine feeling concentrates, produces a slight and a novel sensation.

WASTING CORN.

Can any man seriously pronounce that an animal, standing in enforced solitude and compulsory idleness, is to blame for such conduct? Boys, during their school days, when wanting appetite, or having unnecessary food before them, will not they, in satiety, play with needless abundance? Are men to demand that prudence from an animal which we should certainly not anticipate in the young of our own species? Yet the child enjoys a certain amount of confidence; and its misdoing is, therefore, aggravated by a certain abuse of trust. The horse is confined between boards, and enjoys not the smallest personal liberty. The severity of captivity argues that no reliance reposes upon the captive's discretion. All responsibility is lost, when all freedom of action is denied. Yet the poor prisoner is cruelly beaten for playing with food, although the true fault rested upon him who was too idle to give the exercise which would have generated appetite; and was too lazy to proportion the animal's sustenance to the requirements of its situation.

Moreover, if we had listened to the man's speech, as he entered the servants' hall, we should have heard a boast, that the horse had been *given* a good supper. Now, when a thing is given, all right of ownership passes away with the transfer. The groom, obviously, lost every remnant of title to its possession when he presented the corn to the animal as a free gift; and the beating which he administered to the quadruped was, therefore, an act of wanton severity. The horse had as

great a right as the late Duke of Newcastle, to do as it pleased with its own. The flogging could be no more than the gratification of an evil passion—out of which motive is generated the most serious crimes; and consequently, it was anything but a commendable action in the groom who needlessly chastised a quadruped.

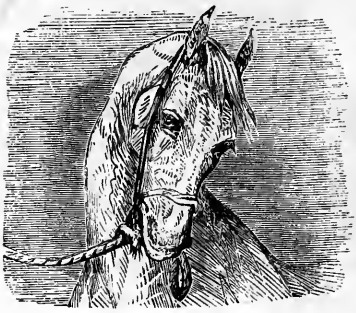
Within the same stable is lodged young master's favorite mare. It is a beautiful creature: not so slight as to be weedy, but made to carry weight with ease, with speed, and with action. The young master on this occasion has traveled to London by rail, and the entire day has been passed by the mare within the walls of its abode. The fellow quadrupeds have had their exercise; but the groom dislikes this horse. It will not remain by itself, while the pipe is enjoyed with a pint of "early purl;" the man's pride revolts against drinking his morning's stomachic in the street. Besides, the animal, when first taken into the open air, will perform a variety of caperings. Young master likes such nonsense: but more than once it has thrown the groom. The mare is, therefore, abhorred with all the malice of a little mind. Yet the creature is all grace and animation; it is only pleasantly excited, when its master gets into the saddle. Can horses possibly possess aristocratic predilections, and can the quadrupeds tell whether hirelings or proprietors are seated on their backs?

The mare is no favorite in the stable. Its feeling of vitality is too powerful to admit of that perfect quietude which the monarch of the locker loves should pervade his dominion. It is always making some noise. Moving about; looking around; nibbling the wood-work; soiling its coat or rumpling its hair. A most perverse brute to look after! It can't be alone and continue quiet! It will not suppress its spirit; hang its head and appear to fall asleep like the other wretches.

Such an animal, weary of captivity, has pawed its bed, till not a single straw remains within the reach of the forefeet. The manger has been repeatedly licked, till the possibility of a stray oat no longer stimulates further endeavor. The quadruped has strained its neck and elevated its head, till it is quite tired of staring around at nothing. It lacks amusement, and is half inclined to provoke a beating rather than endure the weight of silence and the horror of that monotony which pervades its abode. In this state of restlessness, the vision alights upon the collar-rope. It essays to catch hold of it. The cord, however, being fastened near to the halter, of course it moves with every motion of the head. The feat is not, therefore, so easy as to lack excitement. The prisoner becomes quite elated. A new pastime has at last been discovered!

At first the rope is seized between the lips. The tether, however,

often escapes from such a hold: the teeth, therefore, are ultimately employed. The texture of the firmest cord is easily compressed by the muscular power of the horse's jaw! The substance is not unpleasant to bite; nor is the taste of hemp altogether disagreeable. The teeth, consequently, do not relinquish their grip with the termination of the game. The thing is, from mere vacuity, bitten with different degrees of force. Fiber after fiber yields, till, without any design or the slightest intention, the substance is divided. The creature is then released; but it does not at first comprehend that its bond is destroyed. At length, the welcome truth is recognized, and, bounding with delight, the released captive scampers about the gangway, peering into forbidden places, and reveling in its temporary freedom!



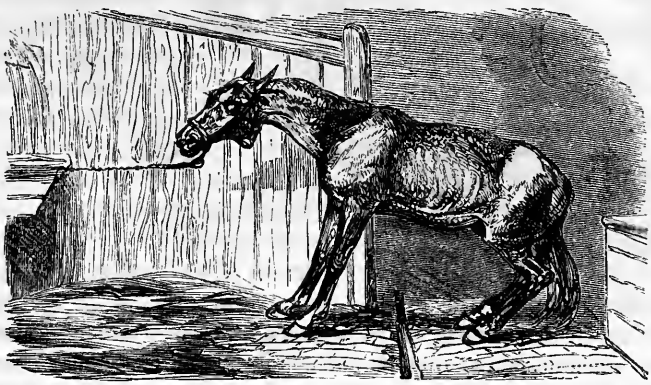
GNAWING THE COLLAR-ROPE.

The amazement of the groom is excited at the spectacle of a horse enjoying liberty! No thought is wasted upon the intelligence which was able to achieve so great a blessing. All animals, within the building, are credited only with evil qualities; nothing praiseworthy is looked for or expected to be displayed by them. The only virtue a horse is esteemed capable of exhibiting is brutish submission. The groom, seeing the creature roving about, exclaims in anger, "That wicket beast, agin! It is up to every 'vice!'"

Another and a stouter rope is procured. The fastening is renewed, and made more strong than it was before. But what has been accomplished once, will be repeated. It may be some days before limited intelligence can recall the precise manner in which its accidental pleasure was secured; but, after an interval, the audacious animal is again in possession of unlawful license. Such occasions subsequently occur more quickly. Till, at length, the groom, puzzled and aggravated by the ingenuity of his charge, substitutes a thick chain for that which had hitherto been represented by a hempen tether.

Iron is not so pleasant to the teeth, neither will it yield so readily to force as did the hemp. The chain is, consequently, an effectual check to some animals. Others, however, are not thus readily subdued. The recollection of forbidden sweets, once tasted and longingly remembered, stimulates their faculties. The teeth soon instruct the understanding that iron cannot be bitten. Is there no other way of breaking the fetter? All living things, when desirous of freedom, pull violently against the

bond which restrains them. The quadruped adopts the general artifice. The chain stretches. It perceptibly yields. Then, all the strength and weight are brought to bear: the fetter breaks. Only, the door is locked for the night, when this second offense is consummated; and the horse is the next morning discovered by its groom, careering about the gangway or sharing the stall of a companion.



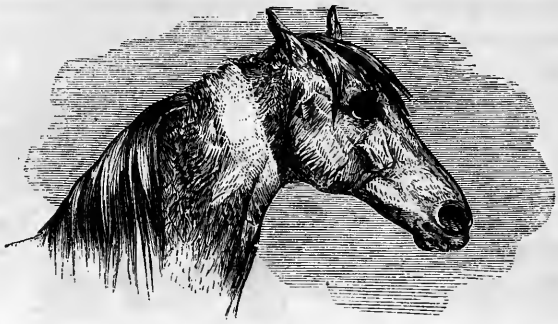
BREAKING LOOSE.

That which one chain is powerless to retain may, nevertheless, be confined by double fetters. The groom, accordingly, has a second ring fixed upon the manger rail. A stout leathern strap is then buckled round the upper portion of a horse's neck. To that additional and heavier chain, passing through the second ring, an extra sinker is fastened. The head of the animal has, by this plan, to endure a double, or more than a double, weight. A constant drag, therefore, does not improve the carriage of the crest; but it may serve to remind the quadruped of its recent successful plan of escape, while it certainly cannot otherwise than stimulate the desire for liberty.

The struggles which, in the first instance, were so effective, being now proved powerless, the groom would joyously chuckle over his contrivance, only perseverance in the horse is causing its neck-strap to interfere with the personal appearance of the animal. Constant friction and perpetual strain have made an unsightly notch in the mane, while the neck-strap has generated a circular mark totally devoid of hair. The mane is nature's embellishment, and neither horse nor lady looks more pleasing, when their flowing tresses have been partially destroyed.

This is very vexing. Yet, when bad begins, worse generally remains behind. Animals which have adopted an idea seem incapable of relinquishing the notion. The creature having once broken its tether resorts

to its former plan of operations; it pulls and pulls, only the bonds not yielding to the same force as before, the horse, following the groom's principle, increases the strength requisite to overpower the difficulty.



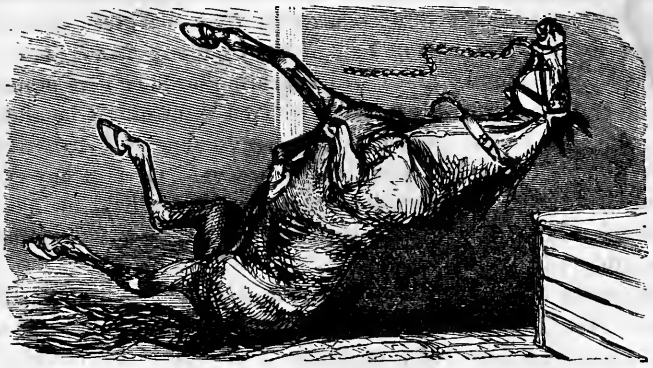
THE EFFECT OF THE COLLAR-STRAP.

A man being defeated in his first essay, probably would resign himself to sullen despair. But the horse is possessed of a different order of mind. Man can conceive a futurity; animals have a knowledge only of the past. All the tales told of animal instincts are capable of explanation by reference to their experience. Chastisement or chiding must be often repeated before brute intelligence can connect the infliction of pain with the commission of certain acts. But, the two being associated, the teaching is generally retained, and, apparently, remains as fresh in the memory upon the day of death as it was upon the first acknowledgment of the lesson. The horse is, however, expected only to obey certain signs, and submit to certain restraints. Its intellect remains, therefore, in a great measure uncultivated. What has been once must be again, embraces the range of its understanding.

The additional chain, consequently, makes no alteration in the behavior of the horse. Present failure only excites to increased exertion. The entire weight and the utmost strength are brought to bear upon the fastenings. The simple quadruped, incapable of calculating the probable results of the sudden absence of resistance, plies with greater energy, till the chains snap, and the huge body, instantaneously released, shoots violently backward. Bones have been broken. Lameness is the general result; but lucky, indeed, is the creature which can rise after such a misfortune, and merely display several huge portions of its skin abraded.

The reader is here invited to examine the facts which have resulted in this serious damage to living property. To bind the strong is not

necessarily to subdue the strong. To fetter the creature in whose welfare man has an interest, is evidently a defiance of probabilities,



THE CHAINS HAVE BEEN SUNDERED.

though it may not have been intended so to operate when the bonds were secured. The majority of horses can be stayed by a simple show of authority. We see a boy hold an animal from which the strong man has newly dismounted. So also would many a human culprit be secure in the old-fashioned prisons. Jails, however, are not erected with any regard for the passiveness of their inhabitants; but such edifices are built of a strength which may defy the efforts of the resolute, and are planned with an intent to counteract the ingenuity of the most cunning. Not so with stables. These edifices are erected to confine a creature possessing ten times the strength of any human being. The partitions, however, are of wood, and the bonds usually of rope. Those who are most fluent about the "vices" of the equine race evidently never thought upon the possibility of the animal conceiving a wish to escape; for so very unequal are most stables to their contemplated uses, that the author has known a horse, in the delirium of agony, kick into ruins the building which, during health, had for years served to confine its huge capability of destruction.

The stable, however, is essentially a prison; and so long as it retains that character, it should be of sufficient strength to resist the wildest efforts of the captives. Not being thus, it reflects disgrace on those who put it to uses for which the building is unsuited. The animal, being in bondage, loses all responsibility. Its safe custody is the duty of its self-constituted keepers. It has no trust reposed in it; and, obviously, can violate no faith. It is held in durance by the right of the strong; and if in the struggle which ensues it can prove the strongest, clearly the right which imprisoned it is upturned.

In another point of view, the decision must be favorable to the animal. Nature has gifted the horse with faculties, and blessed it with instincts. Foremost among these faculties is, a facility of varied motion, displayed in particular yearnings; as a fondness for fresh air, green fields, and a desire to roam abroad, unfettered, in the company of its kind. Man violently seizes the quadruped; without caring for the innate promptings of nature, he forces his slave to live, severed from all its longings and away from all it loves. Which is the horse to obey? Is it to deny the charter planted by its *Maker* within its bosom? Or is it any crime to rebel against the will which will shorten its life, withhold its pleasures, and cripple its body,—studying nothing but the pigmy's personal gain and heartless advantage?

Then, when the reader turns to the consideration of the custodian's conduct. Had the circumstances deprived him of all choice, and limited his means of restraining to a doubling of the customary bonds? It is folly for the weak to engage in a muscular contest with the powerful. It is madness for the feeble to place dependence on straws, when the design is to bind a giant. In both respects the groom was in fault. Had he only thought for an instant, reason would have suggested that plan by which the resistance of the horse might have been subdued, and his master's property might have continued uninjured.

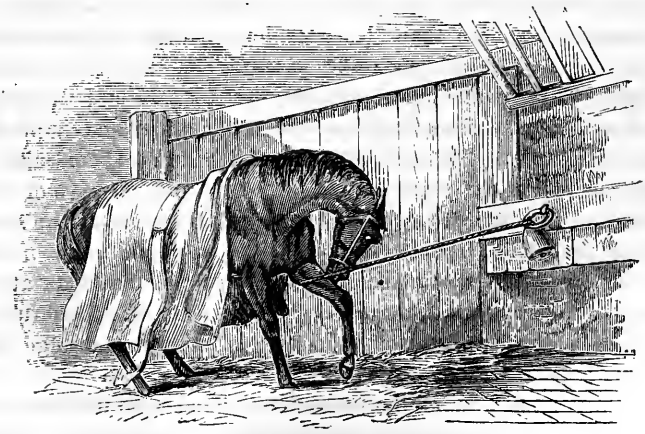
The animal's struggles expressed merely a dislike to the rope attached to the head. Two fastenings were not calculated to remove the abhorrence which a single bond excited. Had the horse been led from the stall and placed in the solitary chamber of a loose box, the change had quieted its spirit. At so small an expense might all the subsequent damage have been avoided. But a loose box does not acknowledge the pride of man, to use all the life with which this world abounds according to his convenience. It was for pride's sake that mortality waged the battle; and in loss did pride undergo defeat.

Endeavor to explain the reason why a valuable horse has been damaged, to any professed groom, and try to make him understand how the miscalled accident might have been avoided;—the man, while you are speaking, will put on that look of dogged indifference which informs you the fellow has closed his comprehension against every argument. When you cease talking, the servant stares you in the face, and replies, "He wants no gentl'man to teach him his doty;" and, by so saying, announces a determination to persevere in that course of conduct which has induced such lamentable consequences. There are men in this world who only employ their reason to perpetuate their ignorance. It is one thing to teach; but it is more difficult to find a pupil willing to be instructed.

In many genteel families, stables are esteemed as places in which

lumber may be stored; while grooms are regarded as odd men, always ready to be engaged upon any passing necessity. The stable attendant is seldom upon the locker; and the one animal, kept for fashionable purposes, is commonly left much to its own society. The creature, thus housed, does not generally get its meals with regularity. Many hours are made longer, endeavoring to discover the pastime which shall lighten the tedium of its confinement. A melancholy game with such quadrupeds consists in an endeavor to hit the collar-rope with the hoof of the fore extremity.

This recreation, to the reader doubtless appears easy; but to the horse it presents difficulties sufficiently numerous to keep up excitement. The rope is a small object; it is situated high up; it occupies a central situation. The sinker to which it is attached keeps it always straight, and prevents it from being lowered. The cord, moreover, being fastened to the head of the quadruped, moves with every motion of the body; the neck cannot be held stationary when the limb is raised to any unusual height. The game may endure for months, without the animal being so unfortunate as to succeed. At length the hoof hits the mark and becomes fixed. The horse instinctively pulls against any restraint. The tether is thereby rendered tense, and the pain of the situation becomes extreme. At last, by a violent effort, the foot passes over the bond, and the poor captive is fixed, until the groom enters the building and removes the sinker.



A FORELEG OVER THE COLLAR-ROPE.

The lightest consequence must be, the hair abraded from the back of the limb, the skin lacerated, and the muscles of the neck sprained by the efforts to escape from constriction. Lameness, of some duration, is the

usual result. Inquire the cause of mishap, and the groom will petulantly inform you "it were occasioned by the pranks of that fidgety beast, which is always up to some mischief." Perhaps you object to this explanation, replying, "'Mischief' is not a fitting term, since it supposes intentional annoyance to another; whereas the horse has injured no one but itself." The man stares with surprise, and rejoins, "Ar'nt it, though! But it has injured me! When shall I ever hear the last of it?" Truly, the stable mind must quit the scene of its present labors, before it will submit to be enlightened. It is now so protected by a wall of selfishness, ignorance, and prejudice, that it is open to no assault.

This misfortune is, however, gravely reckoned one of the "vices" of the stable. It is seldom repeated; but a single instance is sufficient to confer the "vicious" character. Poor animal! When even mishaps are regarded as the planned results of its deliberate wickedness. Having so many virtues, yet not credited with a single good quality! Wholly and entirely misunderstood! Else, who in this accident would not perceive intelligence striving to invent some solitary pastime, which might while away the flagging hours? Else, who would not recognize that this evil arose out of the foolish custom of tying up an active creature to a manger? Else, who could fail to discern that a loose box would have rendered such an injury a positive impossibility?

The author is aware that were horses fitly housed and properly treated, the expense of maintaining these creatures must be increased. But against all additional cost there are benefits to be balanced. The animal would live more than thrice as long; it would, for so much greater period, be fit for its master's service. The accidents occasioned by modern stables would be abolished; the sickness and the disease, produced by inappropriate food, by rigid confinement and impure air, would cease to exist. With change of building, there should also be a thorough change in the stable attendant. The present race of knowing deformities are too full of tricks to be worthy a gentleman's trust. The groom should be forbidden ever to mount an animal, save in obedience to his superior's special command. Now the men ride at their pleasure; as a consequence, they very rarely walk. The quadruped is supposed to be only one person's property; but the poor drudge has to serve "two masters."

Under the present system, the horse is relinquished to the pleasure of the servant. The man's report constitutes the all of a proprietor's knowledge. The mansion, therefore, reflects the ignorance and the prejudice of the stable. The persons occupying the buildings should change places. Most masters ride slowly, merely exercising the nags. Most grooms love speed, and in reality wear out the lives which credulity thinks sacred to

another's service. Yet, though surrounded by abuse, ill treated and often robbed of its food, the creature has no voice with which to accuse or to complain. There is no one who even cares for its welfare. It is credited with every "vice" and supposed to delight in malice. It is imprisoned, beaten, libeled, and nevertheless gentlemen are often encountered who pride themselves upon the care and the money which are lavished upon their stables.

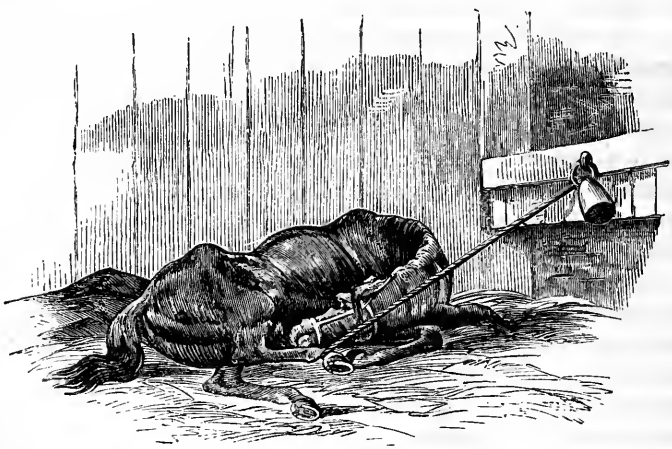
When all that concerns mankind—the formation of their houses, their kind of food, their dress and manners, their laws and customs—have, with the progress of the period, thoroughly changed; even to such an extent has this alteration been accomplished that it has been often said, were our ancestors resuscitated, they would not recognize the land of their birth; it becomes very painful for the mind to perceive that the habits and usages which formerly surrounded the horse remain to this day all but unaltered. It is a proof of the indifference which encircles the stable, when the buildings erected to receive horses at the Royal Veterinary College, and which date from the last century, are, at the present moment, regarded as models of perfection. Man cares only for himself: of his property in the life which he imprisons, he evidently takes no heed. He pays dearly for his carelessness; and "the beast within his gate" shares none of those blessings which Providence has allowed the human race to enjoy, although religion should teach him that the mere mention of such a possession by Deity, ought to enforce a duty upon humanity!

Another so-named "vice" of the horse is frequently the occasion of more serious results than any of the before-mentioned accidents. No person has hitherto explained why the skin should be more irritable by night than during the daytime. Such, however, is the case with horses, as it is with men. A quadruped in the morning is often found disfigured by the hair being removed from comparatively large surfaces. Itchiness has provoked the animal to rub itself against any prominence, or to scratch its body with the toe of its iron shoe; this indulgence has caused the blemish.

Itching and scratching are numbered among the worst "vices" of the stable. Such faults, however, are only discovered in their effects; the groom never estimates, when flogging an animal for this wickedness, how far the abhorred sin may have been produced by stimulating diet, by want of exercise, and by impure atmosphere. No! He clothes up the body of the animal; shuts every window; stops every cranny; and locks the stable door for the night. The last meal being consumed, and the quadrupeds not being inclined for sleep, they one and all begin to itch. Legs are nibbled; necks are rubbed; and tails are lashed. At

length one is sensible of an irritation behind the ear. The head is turned toward the side; the body is curved to the full extent; and the hind leg brought forward. Then, the groom not being present, the toe of the hind shoe can touch the part, and the horse luxuriates in a hearty titillation.

When the head was turned toward the quarters, however, the collar-rope, being attached to the halter, was also stretched in that direction. The hind foot having performed its office, a desire is felt to return it to the natural position. The attempt is made; but this is found to be impracticable. The creature strains against the opposing force, but its struggles only render its comfortless attitude the more fixed. The truth is, that while devoted to the act which allays cuticular irritability, the pastern has slipped over the collar-rope. Such a mishap not only fixes the leg, but fastens the head. With the neck bent and one leg disabled, the animal cannot exert half its power; neither can simplicity comprehend the source of its unnatural constraint. Long continuance of the position becomes painful; alarm seizes upon timidity; the struggles grow desperate; and the poor quadruped, at length, is cast with terrible violence upon the straw which had been shaken down for its repose.



CAST IN THE COLLAR-ROPE.

The animal is lucky which should be overthrown in a limited space and escape serious misfortune. It can hardly encounter such an accident and rise from the ground uninjured. The slightest consequences are contused wounds or fractures of small osseous prominences. The worst result, however, usually follows the body being forcibly contorted throughout an entire night. Bones have been dislocated, or a limb has

been so sprained as never to have recovered its functions. Necks have never afterward been restored to their pristine grace of motion; and, in short, a valuable servant has, by such a misfortune, been so "wrenched from its propriety," as to be rendered utterly useless. Nevertheless, the groom will persevere in hailing the fate of an animal which has been cast in the collar-rope as a just punishment induced by the sufferer's inveterate "vice."

Carters are open to complaint, because their horses are "cast in the halter," even to a greater degree than those of town grooms. In agricultural districts, it is a common practice to turn the teams out to graze during the night, and to take them from the field to work in the morning. Some animals, however, prove troublesome to catch, preferring the cool grass and partial liberty to exhausting toil upon an arid roadway. To facilitate the capture of such quadrupeds, many carters, when freeing the creature, will not remove the halter, but suffer it to remain, because this affords a ready hold for the person who fetches in the horses on the following day. The result is easily anticipated. The ear itches. The foot, scratching the part, gets entangled, and that which was a valuable horse on the previous night, is found, in the dawning light, to be a disabled cripple, or a worthless carcass.

The sane mind will, however, behold in this misfortune only a startling proof of the folly which ties the head to a manger, and leaves the animal at the hazard of a fearful accident. Such events have been common ever since the race was first domesticated; yet, to this day, the custom is practiced. Where one quadruped enjoys a loose box, ten thousand are confined to the manger. Neither loss nor the spectacle of the misery produced by his folly seems able to instruct man where the life of another is delivered over to his keeping. As, in America, the master coerces and lashes his slave, so, in England, do proprietors starve, torture, and slay the animals which all pretend to love. The devotion of a life cannot even purchase those necessaries which are needful for the preservation of health. Though the strength and the service are contingent upon the maintenance of bodily vigor, man, with the capriciousness of tyranny, is neglectful of that upon the continuance of which the value of his possession entirely depends.

It may be urged that the size of the horse's body necessarily limits the dimensions of its abiding-place. This is a strange reason; but it is one commonly used among architects. We, however, do not apply the principle to our own race. Because the Horse Guards are tall men, we do not insist they should sleep in infants' *cots*, or wear the clothes of children. Giants are not forced to inhabit the houses fit only for dwarfs. Neither do we carry out the maxim with other creatures. Large rab-

bits boys put into large hutches. Were smaller horses desired, ponies, even no higher than full-sized dogs, are not scarce. But greater weight and strength enable the quadrupeds to perform larger services. Does it not seem like meanness to select size for our own purposes, yet, where the creature is concerned, to make size a motive for stinting the necessities? The horse is useful to man in proportion to its magnitude; and the poor slave, therefore, ought not to feel the bulk to be its misfortune!

The author cannot here report the grooms' opinions upon such a topic, though, doubtless, these persons would be the advocates of misrule. There is no class, however, which suffers more than stable-men, from the present custom of confining horses. On cold, wintry nights, when snow is on the ground, these persons, who generally live above the stable, are often awakened from their first sleep, forced to leap from warm beds, and, thinly clad, to hurry down stairs to quiet the horses. The entire stable are lashing out at the same moment. Each hoof seems to be leveled at the stall post, which all violently strike; hence the disturbance.

But what occasions horses to kick by night? That question is perhaps best answered by another. What occasions children to cry by night? Both wake suddenly, and each finds darkness or solitude and silence around it. The horse is a timid creature, and it is of a limited intelligence. Children are not generally conspicuous for courage, and, in them, the reason is undeveloped. Infants are born with a natural sense of helplessness; hence they are the easy victims of alarm, and when frightened, they scream aloud. Horses are brought into the world with an instinctive dependence on the propulsion of the heels, and when frightened, they kick. Children have startled up from fearful dreams, and have screamed themselves into fits. Animals also dream; horses having awakened suddenly, have used their heels as a defense, and have been found lying dead upon the ruins of a battered wall in the morning!

The feet, when cast out, hit the stall post. The blackness of night prevails throughout the place; or fear being kindled, the vision is abused. No eye can pierce utter darkness, and terror lends shape or form to every obstacle which the hoof encounters. The dread which sleep has generated, the awakened perception seems to confirm. The animal lashes out with redoubled violence. The noise made by the act soon arouses its companions. Nothing is so sympathetic as horror. Armies have been actuated by panics. Why, therefore, should animals escape from such senseless emotions? When thousands of men have scampered away from no existing peril, cannot the reader understand

that many animals may be impelled by a feeling of fear, when no danger is present?

This is sooner admitted, when it is perceived that the fancy is active in proportion as the intellect is weak: the groom, not having a very powerful understanding, nor having yet slept off the potions and fumes of the previous evening, curses those "vicious varmints," as he shiveringly opens the stable door. No sooner, however, does the candle illumine, or his presence destroy the loneliness of the place, than fearful eyes cast backward glances, and seeing nothing, all instantly becomes silent. Our engraving of the above incident represents every horse in action; though, frequently, the more slothful will remain passive, notwithstanding the tumult which prevails around them.

KICKING IN THE NIGHT.

This is the effect invariably produced, as soon as the quadrupeds have sufficiently mastered their terror to regain their natural perceptions. Sometimes, however, a minute may elapse before consciousness is perfectly restored. That is the period of danger. Many silly fellows, impatient of their thin clothing, pierced by the frosty air, will approach the animals, during the interval, without remembering that though his

voice may produce its usual effect, his costume is altogether a disguise. The man not being recognized, his strange figure may renew the general alarm: when the gangway, having on both sides the hind feet of terrified horses projected into it, becomes anything but a safe promenade.

Now, what produced this excitement of the stable? It was not the dream of one animal which caused it. That may have commenced the tumult, but it was not of itself necessary to the perpetuation of the uproar. The hoof of one quadruped striking the stall post also was distinct from the subsequent noise, which started into existence only with the spread of alarm. Then was generated the terror; for the feeling must have preceded the act, which announced itself by violence. It was the darkness or the silent solitude of the night which allowed full play to the fancy, and conjured up those shadows that drove the horses into temporary madness.

Had not the heads been fastened, the animals, by moving about, could in some measure have tested the reality of their fears. But, fastened to one spot, the fact of having no ability to escape augmented that alarm which the darkness of the stable and the oppression of silence caused and subsequently confirmed. A loose box and a little light would have rendered this noise an impossibility! The horse's eye can see perfectly in that dusk which to the feebler vision of man might represent an approach to positive blackness. There are few horsemen who, when riding by night, have not had reason to be grateful to the keen perception of their four-footed servants. There are, however, fewer horsemen who are aware whence the animal derives this faculty of distinguishing objects in all but perfect darkness.

Cats, owls, and other creatures are popularly reported to see in the dark. The discernment of every form of vision is disabled by *perfect* darkness; but the eyes of such animals are so constructed as to collect and reflect upon the optic nerve any remaining ray of light. The horse has an eye endowed with a similar faculty. Most people must have observed that horses assemble under the trees, and apparently sleep during the daytime. Who, however, ever beheld one of the equine race resting during the night? When summer prevails, night is the feeding time of these quadrupeds. When the flies are no longer abroad, but the dewy grass is cool and crisp to the bite,—when the absence of glare soothes the sight is the period of equine enjoyment and the season of equine watchfulness. Does not the reader acknowledge intention in such circumstances? The carnivora, all of which delight in the flesh of the steed, prowl by night, and abound in those regions of which the horse was originally a native. For the conservation of the tribe, therefore, these creatures were formed very fleet, very enduring, but no less

quick to detect the approach of an enemy, being as restless by night as the beasts which esteem the horse's carcass a favorite repast.

The steed, therefore, does not require a chandelier to be fully illumined and to be suspended in the middle of the gangway. An ordinary night light would enable the animal to see perfectly over a large building; and the expense, when divided among numerous individuals, would for each be too small for any English coin to represent. No light, however, could prevent some quadruped occasionally waking up, and in the fright of imperfect consciousness flinging out both its heels. Such accidents no forethought could anticipate. But a slight flame, only sufficient to dispel absolute darkness, would mitigate if not quite abolish those panics during which every foot in the stable is employed to create the greatest attainable noise.

There is another so-called "vice," which is more directly brought home to the groom than any of the previous mishaps. Probably the statement may, to the reader, appear impossible, which asserts that the servant can impose upon the master so many of his own faults as proofs of "mischief" on the part of an innocent quadruped which it is the menial's duty to look after. This cheat the fellow is enabled to practice chiefly because he is supposed to be incapable of explaining or of distorting those circumstances which he reports. Thus mishaps are called according to their final effects; and no notice is ever given to the causes which led to such results. A horse is said to have "leapt into the manger;" "to have broken loose;" "to have gnawed the collar-rope;" "to have got one leg over the collar-rope;" "to have cast itself in the collar-rope," etc.

Were inquiries instituted, the truth, no doubt, would be speedily discovered, and long ago a remedy would have been apportioned. No domestic, however, enjoys so much of the master's implicit confidence as he who governs the stable. Persons, moreover, of the class respectable are far more swayed by their servants than might be pleasant for the gentlemen to acknowledge. Under this feeling, a vast amount of abuse lies concealed, for the weakness is by no means responded to by respect from the inferior. The "respectable" is always asserting his dignity, and afterward compounding for hastily-spoken words. The groom neither forgets nor forgives these verbal injuries, although his mind is amply stored with maxims against upstarts, to protect his vanity from any wholesome teaching which the admonitions might convey.

Gentlemen, when detained late abroad, generally ride home fast; partly, from a consciousness that it is long past their usual hour of "retiring for the night," and partly, because they know the groom is "waiting up" for their return. When the stable is reached, the coat

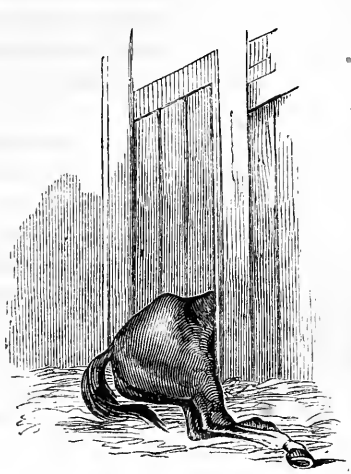
of the horse may be wet with perspiration; or a badly-made saddle may have disturbed the smoothness of the hair; or the night may prove rainy, and the animal be brought home drenched to the skin. There are other causes; but be they what they may, the master walks off to bed, while the servant, noting the example, extracts from it no additional humor to discharge his duty. The man is, likewise, cross and sleepy. He turns the horse into the stall without attempting to dress it. He places oats and hay before the quadruped, and says, "If gentl'men will remain out till all 'ours o' the night, they may sit up and dress their oss 'emselves; for it is rather too much to expect any se'vant, after a 'ard day's work, to keep out of his bed and do it for 'em." Accordingly, the man hurries to his room, and soon sleeps soundly.

The quadruped, when the satisfaction of hunger allows the personal feelings to be appreciated, becomes aware that the partial dryness of the coat has produced much irritability of the skin. The animal, therefore, throws itself down, and commences to enjoy the luxury of a roll among the straw. Darkness disables the vision; but, were the light at its greatest power, the horse, in its state of torture, would probably notice nothing about it, for domestication destroys the natural instincts of all animals, making man the custodian of the cares as well as the bodies of the captives. The paving of the stall, also, being highest near to the manger, the inclination of the floor, together with the writhing of the body, occasions the quadruped to insensibly slide backward, until the tension of the collar-rope forbids its further progress.

This check induces the wish to rise; an attempt is made to bring the legs under the body for that object. But as this movement is endeavored to be accomplished, the hinder shins strike violently against some hard substance. The effort is renewed again and again; till the animal, deprived of sight and prevented from supplying the loss of one sense by the exercise of another, ultimately becomes alarmed, and the struggle commences, during which the hind legs are certain to be bruised, abraded, or other evils are sure to be inflicted upon the organs of propulsion. Nor is this all the peril in which the creature is now placed. Noise awakens the natural timidity of the companions; and should other horses be startled by the violent drumming on the partitions, probably they will become the victims of alarm. The sight of the animals is likewise useless in the utter darkness; and horses, when frightened, usually "hang back," or try to escape from the ropes which fasten the heads to the several mangers.

Under such an impulse, the obtruding legs stand a good chance of being broken; and the animal then must remain in its misery till master has approved the employment of a pistol. Should nothing beyond

bruise and abrasion be present, the groom himself undertakes the immediate relief. Another man is procured, and the knot below the sinker being untied, the head is released from the manger. But it is not usual for quadrupeds, after such a misfortune, to rise immediately. However, the servant always hopes for the best, so he and his assistant jointly pull at the tail till the legs are free from impediment, and then leave the wounded creature for master's wonder and inspection.



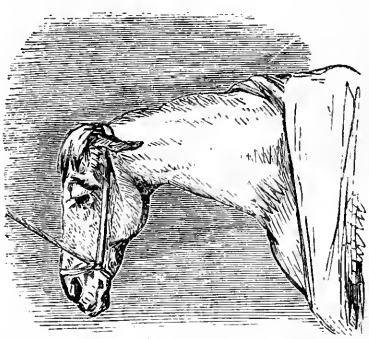
A HORSE CAST BY ROLLING IN THE MANGER.

A HORSE BEING RELEASED FROM THE PREVIOUS SITUATION.

The remedies applied to all injuries (excepting fractures) which occur in the stable are equally simple, and few in number. These consist of a lotion, composed of two ounces of tincture of arnica, which is put into a pint bottle, to be subsequently filled up with water. This is used till all symptoms of bruise or swelling have disappeared, after which another lotion is to replace the first. This last is formed by adding one grain of chloride of zinc to every ounce of water, or one scruple to each measured pint of fluid. These lotions are to be applied frequently, not directly to the injury itself, but a sponge, saturated with each liquid, is to be squeezed dry above the sore, the moisture being allowed to trickle over the wound.

The strongest testimony, however, against stables, as such buildings are at present erected, is perhaps borne by the animals which inhabit those places. The horse is a delicate test, which man would do well to attentively observe when he is desirous of ascertaining the healthfulness of any locality. Naturally it is all animation and gayety of spirit. But,

however much these qualities may be esteemed, such equine recommendations will soon fade before the joint influence of impure air and close confinement, although you may groom and feed at discretion. The natural period of life is diminished one-half, while much more than half of the remaining years is rendered useless by age, prematurely brought on by inappropriate treatment.



THE EXPRESSION OF COUNTENANCE INDUCED BY LONG STAGNATION IN THE STALL OF A WELL-PROVIDED STABLE.

CHAPTER VII.

THE FAULTS INSEPARABLE FROM MOST PRESENT ERECTIONS WHICH ARE USED AS STABLES.

No gentleman regards his country-seat as finished until to it ample stabling is appended. The mansion is the first thing looked to. All its rooms must be noble; all its offices must be convenient. The pleasure-grounds must be magnificent; the kitchen-garden should be much larger than is absolutely necessary. Nothing must interrupt the view from the drawing-room windows. A park, or its imitation, must terminate the lawn. No wood must be sacrificed. Everything must imply more wealth than the owner's purse actually contains. As to stables, of course they must be most excellent; only, being situated in the back-ground, no great expense need be lavished on such out-buildings; any waste spot will serve for their erection. A small space, judiciously employed, can be made to house a great number of horses.

The architect, being informed of the wishes of his employer, unhesitatingly asserts that four feet, or four feet six, or, in extreme cases, five feet, are considered ample width for stalls. The proprietor agrees to grant the last-named space for the abiding-place by day of a living horse, and the spot on which rest must be enjoyed during night by the same huge quadruped. Many a human pigmy sleeps on a more ample couch, which, moreover, is situated in a spacious chamber. Such is the distinction drawn between master and slave; although, when rightly considered, life is but life, and the larger animal has the greater necessity for more abundant air!

This decided, the gentleman rubs his hands, and, warmed by the contemplation of his own liberality, applauds "the nice arrangements," which he has sanctioned "regardless of expense." But the carriage-house, he is positive, shall be built quite large enough. He cannot forget that those rascals grazed his last new vehicle on the very day it came home from Long Acre. The accident happened while putting it into a narrow building. No! Let what will be cramped, the carriage-house must be spacious.

Thus, men take much care of that species of property which, being damaged, can be repaired for money; but they treat with neglect, and thrust into unwholesome corners, that life which, when injured, not all the wealth accumulated upon this globe could restore to soundness. With the inanimate, there is nothing to remove the full force of blame, which man must accept as his fault alone. The deterioration of such articles, when it occurs, cannot be laid to the charge of any other living being. This renders man more careful of such things. With life, there is always something which can be made to take the weight of culpability from the master's shoulders. The horse was obstinate; it had a bad temper; it possessed a vile mouth; it bolted; it refused; it shied; it reared; it jibbed; it kicked, or, in some way, it resolved not to do its duty. The dumb creature can make no answer to the accusation; and human nature is readily convinced of its impartiality when its errors have been mainly cast upon another life.

The builder is, of course, governed by the architect; the architect is anxious to exhibit plans which shall elicit the approval of the proprietor. So, in the end, those arrangements, upon which the well-being and the health of many lives must depend, rest upon the caprice of an elderly gentleman, who now, for the first time in his life, may give serious thought to such a subject. However, this is the rule, whether a house is intended for a family residence or is erected as a speculation: the stables almost invariably occupy the space which is left after every other want is satisfied.

When picturing one, the author designs to portray most modern stables: very few of which are erected after maturer considerations than the imaginary elderly gentleman has bestowed upon his contemplated "out-houses." Proverbially, according to this world's usages, the submissive are the abused; it would indeed be difficult to discover a more perfect type of absolute submission than is exemplified in the powerful body of a domesticated horse. Are we, therefore, to conclude that in this attribute lies the reason why it is the most ill-treated, the worst-nourished, and the meanest-lodged of the many inhabitants upon this earth?

However, that the writer may not be accused of drawing on his fancy, or of representing as actualities things which have no existence in fact, he will, where reference is necessary, quote from the pages of a work on "Stable Economy," written by Professor Stewart, of Glasgow. This book, when a pupil at the Royal Veterinary College of London, was purchased by the author, he being induced to procure it by the high character which it bore among the members of his profession. Therefore it is selected as an authority upon the subject of which it treats;

and when quoting it, the present writer will, so far as may be prudent, forbear to adduce his personal opinions.

Concerning doors, permitting egress from and allowing entrance into stables, Professor Stewart directs that these should be made "eight or eight and a half feet high and five feet wide." The dimensions here laid down are evidently regarded as large or of model amplitude; for, subsequently, we are informed "accidents often happen from having doors too low and too narrow." Aware, therefore, of the necessity for space, the Professor must have imagined he had allowed room sufficient to anticipate those accidents which he was contemplating, when the passage was indited. The reader may, therefore, reasonably conjecture that, when proposing the above measurement, the Professor not only thought he had permitted every requisite freedom, but that he had even provided large marginal capacity for extraordinary occasions.

Certainly, when compared with the vast majority of existing doorways, the proposed entrance may be viewed as exceeding the utmost limit of boundless liberality. The next sentence encountered in the book already referred to, apprises the reader that "three feet six inches is the usual width of a stable doorway; a few are four feet." Consequently, the author of "Stable Economy," warming as he contemplates the munificence of his conception, adds, "no care is necessary, when taking a horse through a space five feet wide and eight feet six inches high!"

Nevertheless, though the difference between the height and bulk of man and horse is altogether in favor of the animal, there are many doors admitting people to human habitations, which considerably exceed the dimensions laid down by a kindly disposed and an amiable writer, as the utmost space necessary for man and horse, simultaneously, to pass through. Within the domiciles of the lesser creature, it is by no means a rarity to discover entrances of a much greater height than Professor Stewart allows his imaginary model stable to possess.

Many gentlemen love to own tall horses. Persons having such a taste will not look at an animal unless it stands sixteen hands high; or unless it will measure five feet four inches from the top margin of the withers to the ground. The foregoing measurement, however, does not allow for the head and neck, which, though not reckoned in the general estimate of equine altitude, still cannot be left behind when the horse quits the stable. Some animals exceed sixteen hands: such quadrupeds, if they carried high crests, would have to lower their ears when passing under one of those beams which the learned Professor evidently intended to be so lofty as should release the groom from every care, and free him from all responsibility.

It is by no means unusual to encounter a man who stands more than

six feet in his stockings. Such persons, when seated, measure at least three feet from the crown of the head to the cushion of the chair. One yard, therefore, added to the height of the horse makes more than eight feet; or, allowing for saddle, hair of rider, etc., approaches unpleasantly close to the highest point of that space which was to release a groom from every care.

Some persons prefer to mount in the stable. Many horses will only, while there, allow a rider to quietly cross their backs. Most gentlemen have their hats on before the feet are placed in the stirrups. But supposing a tall man to get upon a high horse, the covering to his head must be extremely shallow if it is to receive no damage when passing through the doorway which, the reader has Professor Stewart's assurance, is so lofty as to dispense with every care!

To ride out of the stable is very far from an eccentric habit. A model door should, therefore, contemplate the passage of any ordinary sized horse, with any rider of average proportions seated upon its back. The tallest man probable, as well as the smallest possible, should be equally accommodated by its dimensions. A model door ought to provide for every customary purpose. When considering such a structure, it is not sufficient that its size is proportioned to the majority of purposes, but it should be fit for all, save only very extraordinary uses.

The width customary with such entrances—"three feet six inches"—must not be passed over unnoticed, if only to convince the reader of the entire inadequacy of such a space. The author, however, could readily point to many stable doors of even narrower capacity than is implied in the foregoing limitation; but having bound himself not to adduce his own experience, he gladly accepts Professor Stewart's testimony concerning those things which are to be reviewed in this place.

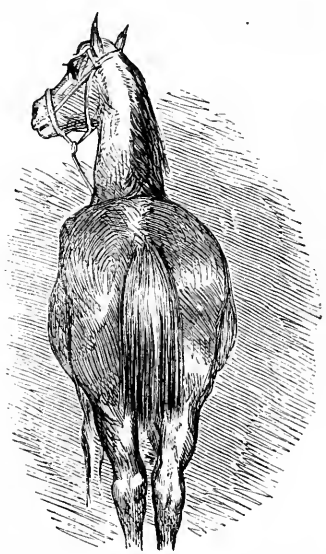
When a horse is led, not ridden, out of the stable, the groom commonly proceeds according to the following method: The man grasps a rein, and, walking by the side of the animal, servant and slave pass the threshold together. The three feet six inches of clear space has to permit the passage of two bodies at the same moment; therefore, dividing the allotted width, and giving half to each, allows one foot nine inches as the share of either. A groom, however, when in full livery, and within his own dominion, is an important personage. He permits no familiarity from his inferiors; he expects only proper behavior from the horse, while he is beneath the shadow of his realm. That groom must be devoid of all self-esteem, and unworthy of his post, who could allow the cleanliness of his costume to be soiled or the polish of his boots to be sullied!

A person of ordinary stature, and in average health, will measure,

across the shoulders, from seventeen to twenty inches. An animal of moderate size can barely squeeze through a clear gap of twenty-two inches width. Then, taking the man at the lowest standard, and adding seventeen to twenty-two inches, we obtain thirty-nine inches, as the smallest amount of room which servant and quadruped could manage to pass through. Such a close measurement, however, supposes the two living beings to touch one another, as well as to graze the sides of the passage. Against such gross usage, the innate dignity of cockade, leathers, and riding coat would alike protest!

Three feet six inches, however, allow exactly one inch to divide the door posts from the man and from the horse; while an inch also remains to separate the dignity of the domestic from the simplicity which it is conducting. The margin is not very ample; and both creatures must march with uncommon steadiness for neither of the animals to touch the posts, or to rub against the other.

Five feet, certainly, afford more ample quarters. Through such a frame both man and horse, supposing each to be quietly disposed, may pass with ease. Even so vast a limit, however, will not allow the groom to dispense with every care. An animal may, reasonably, be delighted when it sniffs the fresh air; and it may be permitted to perform a few pranks, as it quits positive stagnation to make the nearest approach to freedom which its enslaved condition can sanction. School-boys do not observe any severity of order, when they cast aside their tasks to throng into the play-ground. Yet the youths are confined to study only for a comparatively short period. But what must be the feelings of the steed, when leaving the heated stable and the narrow stall, where it has probably been imprisoned for twenty-two consecutive hours?



"DOWN IN THE HIP;" OR A HORSE WITH THE BONE OF ONE HIP FRACTURED.

Who among us, if he had the power, would check the graceful prancings and elegant curvetings, by which a simple nature announces its sense of happiness? To human feeling, an idea of having to carry another's weight, in the direction and at the pace the rider pleases to command; to have a sharp bit pulled against the tender angles of the lips; to be flogged with a

heavy whip, or goaded with sharp spurs,—conjures up an image calculated to awaken no special delight. But long imprisonment may induce that eagerness to breathe the air of heaven, which may possibly render the prospect of labor, beyond the confines of its jail, welcome to the captive.

Quadrupeds have been injured while passing through the widest of modern entrances. The pleasure of escaping from the tedium and from the faintness of actual stagnation generates a joy which banishes the sense of prudence. All feeling and every caution appear to be engulfed in the exultation of the moment. The horse dances as it walks; the tail is gayly whisked; the neck is arched; the mane is shaken and the body is twisted, by those numberless undulations which have often excited the admiration of enthusiastic spectators. If, during one of these expressive movements, the trunk should be inflected more than the seven inches which the five feet allow, or the animal, influenced by the impetuosity of excitement, should come in contact with the door post, the consequence may be fearful. The possibility of check, certainly, does not enter the thought of the joyous creature. The blow is proportioned to the heedlessness which induced it. A bone can be fractured on such an occasion; nor is it an unusual accident. Most horses which are beheld with one "hip down," have had the deformity produced by striking against the post of the stable door.

"Down in the hip," is a groom's phrase, and merely signifies that one of the prominences of the haunch-bone, or, employing anatomical language, that one of the inferior spinous processes of the ileum, has been broken off. This osseous projection is of great importance to the value of the quadruped; it gives origin to numerous muscles, but more particularly to the powerful extensors of the hind limb. That ease, grace, and rapidity with which the member should be moved are by this misfortune destroyed, and the animal is thereby unfitted for the more highly esteemed half of its future services. By the accident it loses caste, and moves downward in the scale of equine employments.

This terrible affliction to the life principally concerned may also be occasioned in another manner. Grooms, when leading a horse from the stable, commonly walk by the side of the animal. Such persons are usually fully dressed to attend their masters, when called upon to perform this duty. Thus arrayed, the vanity of these men is extreme. Their importance almost exacts homage from the quadruped upon which it is their office to attend. Should the creature in its joy, when passing through the doorway, touch the coat of the domestic, such familiarity elicits the utmost indignation. Pride frowns at the pollution of its vestments. A loud word, a kick or a blow, instantly resents the insult. The

animal, in terror, skips about to avoid further punishment. The door post is struck; the haunch is fractured, or the pain is inflicted which renders the creature, with its retentive memory, ever after fearful when passing through an entrance.

BOLTING THROUGH THE STABLE DOOR.

The ordinary life of a domesticated horse is so monotonous that recollection of events cannot otherwise than be retained. The animal subsequent to such a calamity, even though no bone should be fractured, cannot gaze upon a door with calmness. In future, alarm is exhibited whenever an entrance has to be approached. It cannot enter or quit its abiding-place without displaying those symptoms of terror which to the groom are the representatives only of inveterate "vice." The most violent or the blandest of tones cannot restore placidity to the brain which is troubled by fearful recollections. It is useless to coax, to threaten, or to punish: the animal has no ability to assume its former quietude when passing through the terrible opening. But it strives to brace up its nerves for the performance of the necessary act. All its resolution is summoned, till, maddened by excitement, it wildly dashes through the entrance, dragging after it the boy to whose custody the more dangerous quadrupeds are usually intrusted by the prudent sagacity of stable-men.

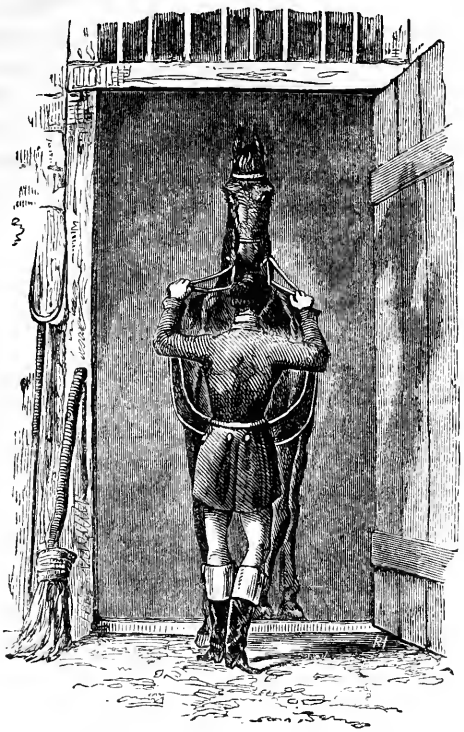
Terror, once generated in the equine brain, is never removed, until years of misery have ruined the health and destroyed the spirit of the horse; rendering it a mere suffering machine, careless of the present and hopeless for the future. The weight of affliction which nearly all of the unhappy race have to sustain, as age increases, changes the temper and the bearing of the creature. Its prostrated existence seems almost to have become indifferent to human malice. Mankind would, certainly, not be the less happy could they be induced to trust in the goodness which their Heavenly Father has placed around them; would they discard those doubts and abandon that defiance which implies a belief only in the *existence* of evil.

With regard to the subject on which recent comments have been based, horsemen should order their servants never to walk through a doorway by the side of the quadruped, which general belief supposes to be led through such openings.

A boy should not be employed in such an office. Prior to leaving the building, the groom should place himself directly in front of his charge. A short hold of either rein should then be taken in each hand. When there located, he can with ease and certainty guide the head of the horse. The motions of the head regulate the movements of the body, and having the controlling power entirely at his command, the servant should commence to back slowly out of the stable. However, there is one objection to the proposed method, which is the rightful mode of proceeding. In the majority of London stables there is but one man, who acts as groom, as coachman, and occasionally as pad groom, or the servant who rides after his employer. This personage being in front of the creature's nose, should the horse sneeze, cough, or clear its nostrils, any ejected matter must alight upon the highly-decorated garments of the man. The self-love of the individual fears such a mishap to the luster of his afternoon's costume; when the interests of the proprietor are opposed to the vanity of ignorance, no spirit of prophecy is needed to pronounce on which side victory will be declared! These accidents may be greatly mitigated by the hat being laid aside, as from all else the soil may be removed, and leave no stain behind.

Supposing this obvious recommendation to be adopted, should any symptom of alarm or any disposition to display restiveness chance to be exhibited, progress must be immediately stopped; nor ought it to be again resumed, until the animal has thoroughly recovered its composure. No matter how long a period may be required to restore tranquillity, the groom should, contentedly, continue stationary till every sign of timidity is banished or dispelled. In such a manner, servant and quadruped

should leave the building: nor ought the man to quit his post before the doorway has been more than cleared.



LEADING A HORSE THROUGH THE STABLE DOORWAY.

It must certainly be read with a sensation of surprise that, since a stable was first erected, horses have been constantly injured by passing through narrow doorways. It will assuredly excite wonder that, after centuries of experience, enforced by serious loss, the easy, safe, and natural remedy for such miscalled "accidents" needs to be gravely pointed out, or to be promulgated as it were a novel suggestion. The mind of the master has, however, been otherwise engaged; the horse has never been regarded as a living creature, having certain attributes and rights, with which all keepers of the quadrupeds must comply. It is rather viewed as "something" absolutely *given* to mankind, concerning which the human being has, therefore, merely to consult his will and his pleasure. Consequently, when regulations are formed for the government of the equine race, these are never framed as though there

were the habits, the instincts, and the wants of an existence to be considered.

The assumed evil disposition of the most placid of beings has been wrongfully abused as the cause of every injury. The possibility of so groundless a reason being advanced to cover that carelessness which provoked punishment, is by no means complimentary to the wisdom of mankind. The care needful for the safe guidance of a timid animal is denied; the trifling outlay which would secure the immunity of the creature is selfishly withheld. Nevertheless, how frequent and how poignant is the lamentation, which complains that horse flesh is a "very hazardous species of property!" Yet, when investigated, what does the cry import, more than that a beautiful living body is not sent upon earth superior to man's power of abuse?

Nature endowed the horse with every faculty needed to enjoy the freest existence on the most extended plane. It was created the graceful embodiment of the wildest liberty! The classic mind rightfully recognized its attributes; for by it, as Pegasus, the boldest flight of a poet's fancy was significantly allegorized. The ancient intellect, in its freshness, beheld in the steed the fitting representative of that which prisons should not confine, neither should chains fetter. Yet, formerly, the full truthfulness of the image was but partially demonstrated. Years of after-experience have shown the animal can thrive in opposite regions; it can live on almost every variety of sustenance; it propagates its race under the extremes of too much care and of absolute neglect; the creature which man sorrows over as so very delicate has the strength of a giant, the docility of a dog, and a constitution which is well characterized by a proverbial expression, "strong as a horse!"

The boasted civilization of the present age has degraded the animal into a living type of stagnant misery! It was gifted by its Creator with a speed which defied pursuit; with a sight which could endure the sun's fiercest ray, or could penetrate the darkness of the night; and it was gifted with the recognition which is telescopic in its range of inquiry. It was sent upon this earth with an ample nostril, and a sense of smell capable of appreciating the varied odors of an Eastern plain. How has human perversity distorted the intentions of Beneficence! Now it is locked into an outhouse, where either total darkness prevails, or the eye is fastened close to a whitened surface. It is tied to a manger, while the floor on which it stands so slants as must banish ease from the feet, and the partitions which confine the body prevent rest from change of position. If the place is cold, the creature's home is possessed of no means to counteract the effect. If it should be warm, it is contaminated by the fermentation of filth; the air is loaded with gas, which must pain

the nerves, occasion the eyes to smart, disgust the fine sense of smell, and destroy the health by preventing perfect oxygenation of the blood.

Misery, solitude, and confinement will generate disease in a man. Wherefore should an animal be esteemed superior to such influences? Impure air, sameness of food, and being tied to a manger, inducing feeble bodily health, gradually undermine the powerful equine constitution. Other evils, of a local nature, result from causes which might easily be removed, were man, in his wisdom, only convinced such influences ought to be destroyed. The forelegs of the stabled horse are always the first to yield. Yet the prisoner may endure severe lameness in these members, and, nevertheless, the body be so slightly sympathetic with the affliction as actually to lay on fat. It is different with the hinder limbs! Should one of these last be injured, the entire frame languishes. The quadruped then evidently pines in torture, and its flesh sensibly wastes.

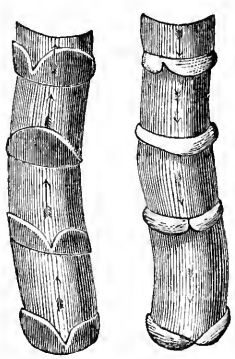
Very different is the manner in which various physiologists account for this peculiarity. Some appeal to the greater proximity of the anterior extremities to the heart, or to the center of circulation. That, perhaps, is the generally received doctrine; but as the free circulation of the blood is essential to the healthy functions of the nerves, it is difficult to comprehend why nearness to the heart should deprive a nerve of its ability to communicate sensation. The head is supposed to be rendered conspicuously sensitive, because of the great proportionate quantity of blood which circulates in that region. The pretended rule, therefore, will not bear the test of general application; it must be discarded as an assertion boldly put forward to cover ignorance.

The forefeet of the horse are those portions of the frame which have to endure the utmost limits of mortal perversity. The flooring of the stall invariably inclines from the manger to the gangway. The hind hoofs may, should the animal hang back the full length of its collar-rope, rest in the open drain with the toes downward; or the hind hoofs may, in some cases, stand upon the gangway, the width of which the gutter defines. The front limbs, however, can scarcely change their position. The hoofs must rest upon the slanting bricks, which incline the anterior of the foot in the upward direction. The forelegs must sustain, and continue subject to the unnatural stress of their enforced position. This silly and arbitrary arrangement in some measure accounts for the fact that the front limbs of the horse are the first parts of the body to fail, for these parts never, in the stable, are capable of rest, nor can they be sensible to ease.

It has, of late years, become the general practice to bleed the horse from the sole of the forefoot. When such a custom is adopted, the first portion of blood extracted is, commonly, cold as spring-water, or

from thirty to forty degrees below the standard recognized as "blood heat." Now, a certain warmth is imperative to the existence of vitality, which is arrested so soon as the natural heat of the body is sensibly diminished. The functions are stayed when any region has parted with its caloric. Dentists take advantage of this fact when, after having employed the chilling process, they extract a tooth without pain. Cold, therefore, which can destroy sensation in the human jaw, likewise renders the foot of the horse insensible to agony.

But why is the foreleg subject to a degree of cold which does not also affect the hind extremity of the animal? Because the stable permits the hind limbs to enjoy the greater freedom of action. These may be in perpetual motion; for the posterior members are situated at the boundary of a circle, of which the ring of the manger represents the center or fixed point. Has the reader ever beheld a column of soldiers move in obedience to the officer's command, to "Wheel?" The man at one end of the line can hardly run quickly enough, while he who is placed at the opposite extremity is troubled to be sufficiently slow in his movements. Now, the hind legs of the horse represent the man who has to scamper, and are sensibly exerted whenever the quadruped "comes over;" the anterior extremities are types of the soldier who scarcely moves, for very seldom are these members necessitated to change their position. Their stable office is to uphold the body, and to remain fixed while the toes are inclined upward! Were the motion permitted to both extremities equalized, the fore limbs would naturally be the warmest, since the great distance from the heart and the greater angularity of form must render circulation of caloric within the quarters much more tardy.



VALVES OF THE VEINS IN THE LEG.

1. The valves of the vein laid against the side of the vessel by the upward current of the blood.

2. The valves projected from the sides of the vessel by the attempted retrogression of the vital stream.

But why do not other parts become as cold as the fore limbs, when all belong to the same body, and all derive their heat from one common medium, or from the same circulation? The veins in the legs have valves. Then, if these vessels are so provided, and the distribution of warmth is one of the purposes of the circulation, why do not the valves favor the return of blood from the foot, and thus generate heat within the member? When answering the foregoing inquiries, the reader's patience is entreated, since the reply, to be intelligible, cannot also be concise.

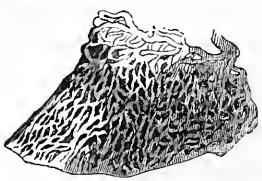
Anatomy affords the best explanation of the peculiarity. On remov-

ing the horny case from the hoof of a dead horse, a secretive membrane is exposed; this membrane constantly renews the horn. Beneath the secreting surface, a complex mesh-work of large veins is discovered, which, by their size, inform us they serve as receptacles or sinuses quite as much as vessels. These veins have no valves, though such are commonly present in other tubes of the same class. The absence of this provision is, in them, remarkable, because the blood has to move against gravity; valves are a means instituted to favor the current under circumstances of this nature. Valves are composed of duplicatures of the lining membrane of veins: when the venous current flows toward the heart, these valves, by the impetus of the stream, are forced upward, and remain close against the sides of the vessels; but, should the slightest retrogression of the current be endangered, the backward motion of the blood carries the numerous valves outward or downward, and effectually locks the interior of the veins.

The anatomy of the foot, however, proves the horse unsuited to confinement. The animal was created to dwell upon the plain. The foot, for its health, requires perpetual motion. When free, or before man subjected it to his convenience, every bite the creature took necessitated a fresh step. The mesh-work of veins was large, the vessels freely communicated with each other, and were devoid of valves, that the blood might readily flow into, while it might as readily be expelled from, the tubes; and because, in the habits of her creature, nature had established a force which rendered the development of valves unnecessary. The horse, as it progressed, alternately lifted the foot from the earth and rested it upon the ground. When the hoof was raised, the blood rushed into and filled the mesh-work of veins. When the foot was again placed upon the soil, the superimposed weight squeezed the vessels, between the bones and the horn, thus pumping out the blood, or forcing it toward the heart.

Blood which has become cold has lost the first of its living properties. Blood deprived of heat cannot support health, or supply secretion. Hence the feet of stabled horses—notwithstanding the care of science, the numerous applications, and the endless variety of shoes, all of which are designed to benefit the hoofs—generally become diseased. The quadruped of the agriculturist, although it be neglected and badly shod, yet, because of its slow or constant work, and habitual freedom in the field, usually exhibits feet which are sound and open. The donkey, though much abused and shamefully treated, rarely inhabits a stable, and more seldom enters a stall. Its feet become misshapen; but the curse of the gentleman's steed, foot lameness, and especially navicular disease, are all but unknown among this tribe of the equine race.

The foregoing statement also affords an explanation why the most valuable or the stabled horse is so frequently afflicted with contracted hoof, with brittle hoof, with an unhealthy secretion of horn, and with the various other ailments which may be classed under the diseases of the foot. It likewise supplies the most clear reason for the beginning of that disorder which has been denominated "the curse of good horse flesh"—Naviculârthritis, or ulceration of the navicular bone. Bone is slow to take on morbid action, and ulceration is the accompaniment of low vitality. When the circulation is retarded, the animal powers are enfeebled. Ulceration, affecting a lowly organized structure, is that which a pathologist would anticipate as the consequence of prolonged inaction. It is impossible to say what evils the continuance of such a condition may not induce; but sand-crack, seedy-toe, and various painful affections can be clearly traced to have thus originated.



THE VEINS OF THE HORSE'S FOOT.

The mesh-work of veins, without valves, which are situated immediately under the secretive membrane of the hoof.

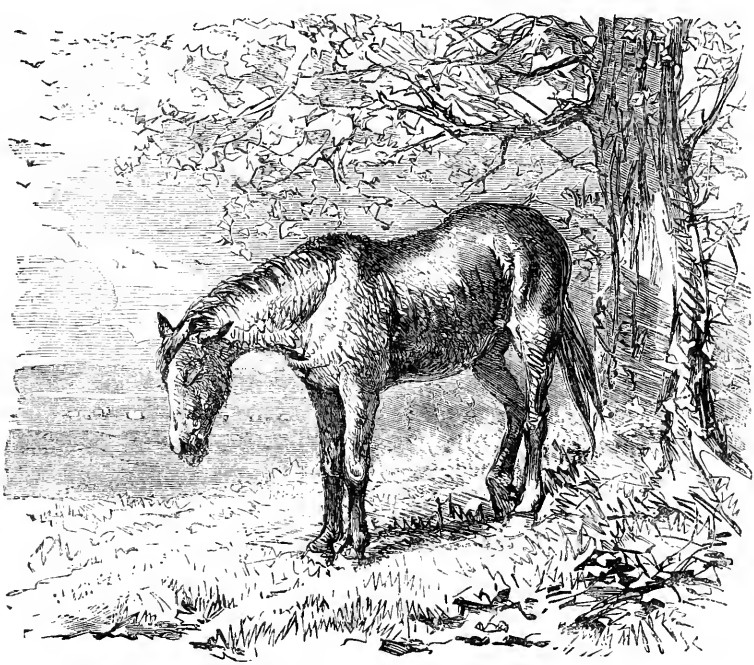
The effect of the stable, also, accounts for the farmer riding his nag for many years, while few gentlemen approve of a horse for saddle purposes after it has passed the sixth summer, notwithstanding their animals are better groomed and more carefully fed. In the country, farmers' quadrupeds are generally turned into the field, and have to walk for their living. Grass is a poor food; but the constant exercise keeps the creatures in sounder health than can be maintained by better sustenance combined with perpetual confinement.

An absolute necessity for the constant movement of the feet is to be deduced from the arrangement of the vessels. The arterial blood falls almost perpendicularly down the fore limb, while the venous blood has likewise to ascend against gravity. This arrangement rendered imperative some propelling force to return the effete fluid; hence the necessity for the perpetual employment of the squeezing or pumping action of the hoof. The habits of the animal to graze only from choice portions of the herbage occasion a vast distance to be traversed; but such leisurely sauntering was, by nature, kindly intended to keep sound that portion of the frame on the integrity of which the safety, the welfare, and the pleasure of her creation was dependent.

"Certainly," the reader may exclaim; "but if the warmth of the body is dependent upon arterial blood, the coldness of a part cannot be accounted for by stating the facility afforded for the oxygenating current reaching that which is chilled." Very true. But before any substance can fall down, the space through which it has to pass in its descent must

be made clear. The quickness with which the arterial blood reaches the foot is, consequently, regulated by the speed with which the venous current is expelled. The hoof of the stabled horse is constantly congested, or the effete blood accumulates within the horn; because motion, in the venous stream, is impossible. The current hardly stirs, and the fluid, by stagnation, becomes cold. Did the possibility of action allow the pumping force fair play, then the forefoot would, doubtless, be as warm as other parts of the animal's system.

Anatomy demonstrates these facts; but the habits of the quadruped have never been attentively noted. Had the instinctive promptings of its desires been studied with a wish to profit by such instruction, stables had been erected for some better purpose than to closely confine an active animal, and to illustrate the earliest principles of surface drainage. As it is, a building has been raised totally inadequate to its pretended uses, and one in the arrangement of which the convenience of man has alone been consulted. In such a place, a horse has, for ages, been im-

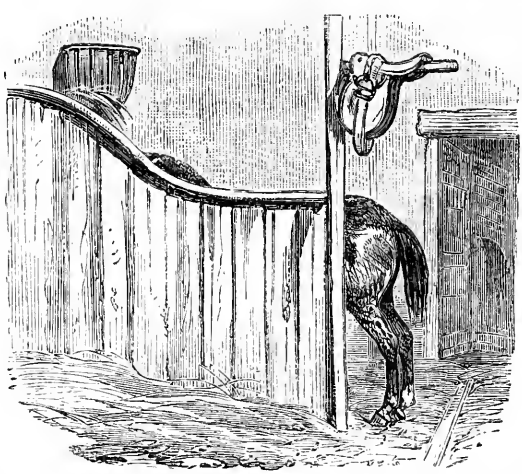


HORSES, WHEN FREE TO CHOOSE, ALWAYS STAND WITH THE FOREHOOFS ON A LOWER LEVEL THAN THAT OCCUPIED BY THE HIND FEET.

prisoned. It is true, the captive did not thrive. Yet this consequence was rather excused than inquired into. Humanity has endured loss,

disappointment, and vexation; but pride found it more agreeable to accuse the works of Heaven with the results of its own culpability than to suspect the adequacy of its own institutions. Nature has, in vain, labored to instruct the waywardness of conceit. Mankind could endure all evils before it could afford to question the perfectibility of mortal invention.

Horses, when disposed to remain stationary, always select ground where the forefeet can occupy a position lower than the hind legs. In stables, this inclination is reversed, the hinder limbs invariably resting on an inferior level to what the forefeet range upon. The motive upon which the dictates of nature are outraged is the facility which a floor slanting in the backward direction affords for surface moisture to flow into the open gutter that runs along the extreme margin of the gangway. Science, evidently, has not been consulted in an arrangement which sacrifices the health and the comfort of an inhabitant of the stall to obtain so obvious, gross, and poor an advantage. Stables, evidently, were built only to please the fancy, and propitiate the prejudices of ignorant proprietors. No thought was bestowed upon the quadrupeds such edifices pretended to accommodate. The consequence is seen in the discomfort, torture, and the speedy decline of lives which are forced to dwell within one of these notorious charnel-houses.



WHEN CONFINED TO THE STALL, HORSES GENERALLY STAND WITH THE HIND FEET UPON A LOWER LEVEL THAN THE FOREHOOFS OCCUPY.

Knowing the object desired, the reader will naturally expect to be informed whether dryness is secured by the present arrangement. When answering this inquiry, the author must describe the general plan accord-

ing to which the floors of most stables are laid down. The pavement of the stalls is composed of small, hard bricks, known as "Dutch Clinkers." Bricks, however nicely they may be placed, cannot form an absolutely smooth or even surface. They must present spaces in which fluid will be retained; and, being porous, bricks cannot prevent effluvia from rising through their substances, or cannot hinder liquid from percolating into the soil on which they rest. The urine acquires acrimony as it corrupts beneath the pavement, which makes a renewal of the flooring of a stall an efficient reason for ordering the inhabitants of a large building to be removed, since the pavement will have to be disturbed.

To demonstrate that the urine of the horse undergoes a speedy change when exposed to the action of the atmosphere: the fresh fluid will produce no change in litmus paper; but after a few minutes' exposure, the liquid changes the blue dye to a red color, having, in the brief interval, become acid, and in that condition it yields strong fumes of ammoniacal gas. It is the presence of this gas that chiefly occasions that peculiar pungency which is characteristic of the stable.

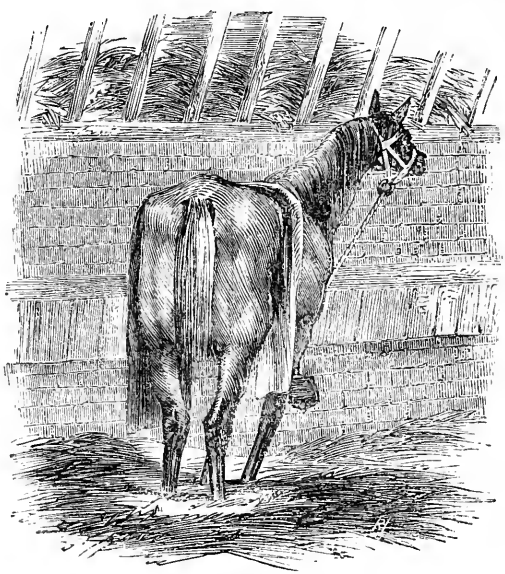
To promote such an alteration, and to procure from the excretion the greatest possible amount of noxious effluvia, the liquid is made to gently flow over an open, a rough, an uneven, and a slanting surface; thus subjecting the greatest possible quantity to the direct action of the atmosphere. Should not the whole change be thereby accomplished, the fluid slowly drains into an open gutter, which slopes so gradually that its contents frequently refuse to move. Had the architect who originally laid down the plan of a modern stable designed to make the interior poisonous, it would have been difficult, having no more active agent at command, for him to have conceived means better calculated to fulfill his object.

The groom, to warm the place, stops up every crevice through which the vapor could escape, or pure air could find admission. Many stablemen, also, exclude the light, under a groundless notion that horses thrive best when in the dark. Darkness does not necessarily lead to sleep—it simply disables one of the senses; thereby animal life is deprived of a harmless enjoyment, while at the same time the exclusion of light causes the eye to shrink from the glare of day; while the continuance of the evil is likely to induce blindness. Hours of weariness, passed in a confined space, and within a tainted atmosphere, are strange means when employed to promote extraordinary thrift. More especially, when we consider that the inclination of the floor forbids rest to the feet, while the exclusion of light incapacitates all visual recreation.

Horses, not having a knowledge of chemistry, cannot, of themselves, purify the air; but certain animals, instructed by their instincts, do all

in their power to counteract the evils which the slanting nature of the flooring has a tendency to produce. Such steeds lean first upon one foot and then upon the other; thus the entire weight bears alternately upon either hoof, while each is in turn released from all pressure. If not checked, quadrupeds will often continue thus employed for hours. The creatures know nothing concerning the structures of their own bodies; but the most learned physiologist could not have invented any plan better calculated to supply the pumping action which accompanies the walk, and promotes a healthy circulation, thus securing soundness to the hoof.

Indeed, human intelligence would appear to be incapable of appreciating the benefit which must result from the simple artifice of an inferior being. The animal which is detected when endeavoring to correct the evils of mortal perversity, is always severely punished. The indulgence is, by the pure mind of the groom, recognized as a wicked "vice," and is stigmatized under the term of "weaving." The highly intelligent



WEAVING.

horse is fiercely lashed for laboring to prevent the consequences of man's stupidity, and for striving to improve its master's property, while solacing its confinement, by an act as harmless as it is innocent.

A creature standing on a slanting floor, with the head pointing to the most elevated part of the incline, occupies the same relative situation

which the body would possess, were the quadruped journeying up the side of a hill. By the sloping nature of the ground, the weight of the frame is partially removed from the insensitive bones; and to such an extent as the osseous structures are relieved, is the burden thrown upon the flexor tendons, or upon the back sinews. It is imperative for the health of bone that it should endure almost continuous pressure. On the other hand, tendon or sinew feels no pain from occasional tension; but pressure, if long sustained, produces the acutest agony. When one structure is denied to fulfill the uses for which it was created, and another structure is condemned to discharge services for which it never was designed, the first soon degenerates, from not having sufficient employment, while the second speedily becomes disorganized, from the necessity to perform too much labor.

Bone, tendon, and cellular tissue almost compose the shin and the foot of the animal. Horsemen know how difficult it is to make and keep the legs of a stabled quadruped hard and fine. It is, however, folly to rub and to bandage while inactivity is permitted to generate congestion. No application can possibly destroy the effect while that cause is allowed to be in operation. Nor can the foot secrete sound horn while the exercise which is imperative for health is withheld. No shoe can give that which is dependent upon motion. There are many more pieces of iron curved, hollowed, raised, and indented, than the author has cared to enumerate. All, however, have failed to restore health to the hoof. Some, by enforcing a change of position, may, for a time, appear to mitigate the evil; but none can, in the long run, cure the disorder under which the horn evidently suffers.

Anointing the hoof, or using various stoppings, are equally fruitless. Both leg and foot, after a day of hard labor, only return to the stable to undergo more excessive, because more continuous, fatigue. The sloping pavement renders ease an impossibility. The exhaustion cannot be banished from limbs forced to occupy such ground. Longer rest but induces additional enervation.

The inquiry suggested by the above remarks is, whether a horse does not return with eagerness to its stable? Is it natural for a creature to exhibit eagerness when it enters the abode of its agony? In answer to the foregoing, it may be advanced that all grades of inferior life which exist under the care of man are in so unnatural a condition as allows no inference to be drawn from apparently voluntary actions. Birds were intended to cleave the air. No one can believe but the goldfinch must be more happy when bathing its wings in light, and freely sailing on the atmosphere, than when the gay spirit is cramped within one of those small cages in which certain people delight to confine the joyous heart.

Yet, let the bird be captured and immured within such a space. After some time, it will require perseverance to drive the feathered captive from the prison which must make stiff the wings and cause the breast to sorrow. The act, however, will be difficult; when accomplished, unless the wire door be closed, the shelter of its inadequate abode will be speedily sought again. Do birds, therefore, love to be caught, and to be caged?

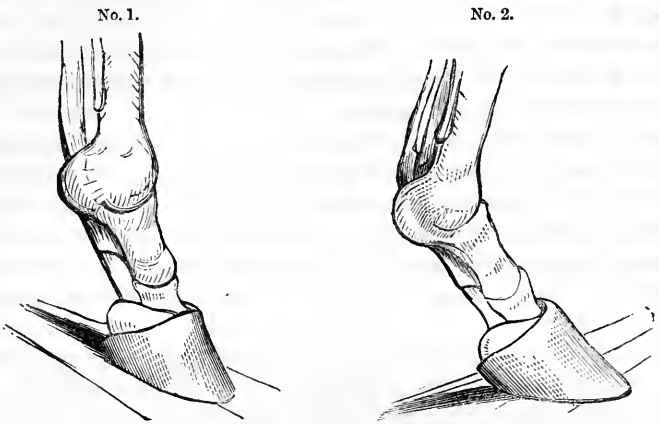
Should the above instance not be perfectly satisfactory, another is ready to illustrate the subject. Everybody has heard of the French noble, who had grown old, gray, and feeble while in durance. The gentleman, when released from the Bastile, shed tears, entreating to be restored to his cell. Are we, therefore, to infer that the French love imprisonment? Each case may, perhaps, be interpreted to exemplify the power of habit. One year of sheer animal life will stand against a long term of human existence. A horse lives in the facts which surround it. It exists in the present, and has no imagination to embitter the hardness of its fate. Man is always escaping from the circumstances which engirt him; he is always fancying something brighter than his present lot, or is straining toward the future; he may be said to exist most in anticipation. Give humanity no prospect to dwell upon, deny it all hope to contemplate, the soul sinks into utter dejection; and a palace or a jail are alike regarded with indifference.

The horse was, by nature, formed to be the companion and the servant of man. The original of the breed, which in animals intended for the wild state it is difficult to destroy, is, with the equine race, unknown. It is, in heart, in body, and in soul, the obedient servant and willing helpmate of the human race. It does not submit to its doom; its lot is accepted as a foregone decision; it has abandoned every thought of liberty, and has embraced its fate. But is it worthy of the intelligence to which the creature has devoted its existence, to convert such perfect and entire abnegation of self into a reason for perpetuating those tortures that were invented by barbarity, and are, it is hoped, only continued through ignorance? The reader needs no prompting to afford the fitting answer.

This question is not affected by the love or hatred of the animal for the stable. The only point which really remains to be decided is, does the stable, as at present built, represent the most healthful and the most pleasant abode which man's imagination can picture for his tired and submissive companion? If it be possible to suppose a better home for the quadruped, then it becomes the moral duty of man to raise such a structure. All pretenses about the sacrifice of existing property and the regards for pecuniary outlay are of no weight when urged against a

rightful obligation. Man is blessed with reason, and is constituted, in this world, the only judge of his own actions. So high a privilege should bind him to be even more than just in his decisions!

To return. The reader will observe that, in the sketch No. 1, the bones rest one upon the other. That arrangement ensues when the



THE STRESS ENDURED BY THE DIFFERENT STRUCTURES WHICH COMPOSE THE LEG OF THE HORSE IS DEPENDENT UPON THE POSITION OF THE FOOT.

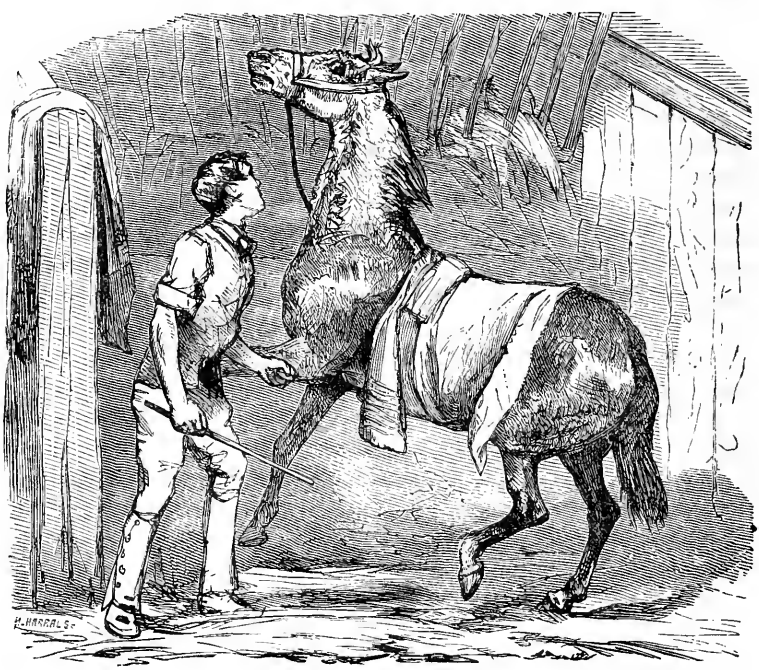
animal descends an incline. There can exist no man but must have enjoyed the ease which is imparted by walking down a slope. Every person must also be acquainted with the fatigue consequent upon ascending an acclivity. The effect is generally explained by stating that, in one case progression is favored by, while in the other it is made in opposition to, gravitation. Such a cause, certainly, is in operation; but the different structures on which the strain reposes, when moving in opposite directions, to the author's mind supply a better illustration of the fact.

Do not muscles, and does not tendon participate in the burden which is upheld by bone? Assuredly they do; but in various degrees. No limb can move unless some muscle contracts. Every muscle in the body arises from bone, and is inserted into bone by the interposition of ligamentous fiber. Before a member can be elevated or depressed, some muscle must drag from some bone, that it may move some other bone more distantly situated. Then, tendon cannot escape strain, since in no possible attitude is every portion of the frame in absolute rest. Motor muscles, however, generally exist in pairs. They are spoken of as elevators and as depressors, or as flexors and as extensors. Their uses are opposite, but not opposed. When one set works, the other is inactive.

The bones in the sketch, indicated by No. 2, evidently press against

the backward tendons. Such a position, if long maintained, leads to fatigue, and ultimately induces pain. Man cannot enjoy rest under such a condition of parts; though both tendon and muscle are benefited by brief tension, continuous strain soon exhausts either structure. The reader must have beheld two travelers meet upon a mountain's side. One shall be descending from the heights, the other is ascending from the valley. But while the men converse, they do not hold their relative positions one to the other. Each, without thought or reflection, exchanges it for the horizontal situation; while their dialogue lasts, both present their sides to the spectator.

This is precisely what many horses learn to do. Much indignation is always excited in the groom's bosom because an animal, prompted by its instinct, has discovered a method of easing its limbs and of saving the master's property from injury. Standing for hours upon an acclivity, however gradual, throws stress upon the back sinews, and must pain the tired limbs. To counteract that effect, the animal turns the head from



STANDING ACROSS THE STALL.

the manger, and stands across the flooring of the stall, after the same plan as actuated the two travelers when they paused upon the mountain

side. But the conduct which in man draws forth no remark, when exhibited by the horse is abominated by a virtuous groom as the declaration of inveterate "vice."

Pitiable vice! It is melancholy to behold a man cruelly punish an animal for a reasonable act. But heavy castigation does every horse receive that is guilty of exercising the instinct with which Heaven has endowed it. The groom, being excited to resentment, grasps a stick and deals well-aimed blows, while his voice shouts forth harsh words, which pain and terrify the patient creature, whose only faults were too much sense and too great feeling.

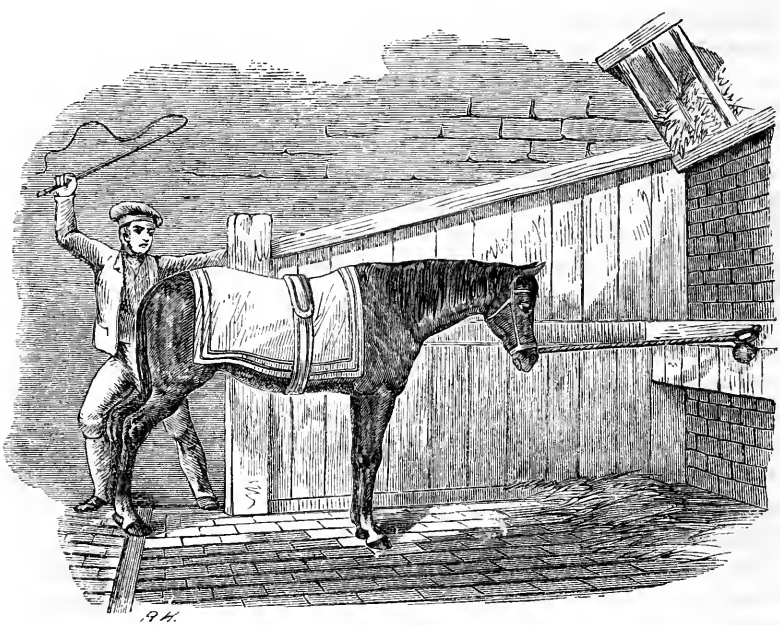
When a horse is terrified, danger is likely to ensue in exact proportion to the smallness of that space which can be commanded for the display of its alarm. The timidity being excessive, of course the contortions of the body are equally demonstrative. The animal dashes about, regardless of its own safety, and heedless of those around it. It sees nothing; it can remember nothing, save only that some horrid torture is imminent. Its struggles are wild efforts to escape. In the momentary panic, it may break, or it may damage anything. It may kill any person who shall stand in its way, or, in the furore of its agony, it may, through misadventure, do serious mischief to its own body.

Such consequences are always to be expected when a horse is beaten within the stable while the head is fastened to the manger. By the latter circumstance, the probability of an injury is increased. Harm, however, to his employer's property, danger to his own person, and peril to the safety of his charge, the groom despises, or willingly hazards, rather than allow an odious "vice" to escape correction! No severity, however, can teach a quadruped not to seek the ease which it has discovered the means of realizing. When the groom is absent, or during the night, the act of "wickedness" is always renewed, although, in the presence of its attendant, the indulgence may be suppressed.

Slanting pavements likewise instruct horses in the practice of other habits which the groom, in his peculiar sphere of mental elevation, cannot otherwise than recognize as "vices." As such, he punishes their exhibition without mercy. Some public-house companion may visit the stable-man while he is dozing through the afternoon upon the locker. Most servants notoriously have no choice between stubborn duty and the relaxation of "pipe and pot." The groom is always the ready victim of temptation, and upon the slightest persuasion quits the stable for the parlor "over the road." Some sad and patient animal may have been silently watching, longing for the man's absence, during a considerable period; no sooner does the creature hear the door slam, than it begins to take small steps backward. The horse thus feels its way till

the sudden fall in the pavement announces that the posterior hoofs have reached the gutter, within the hollow of which the toes are immediately depressed.

Such an attitude being attained, all stress upon the flexor tendons is removed from the backward legs. The bones, while the toes can be depressed, sustain the weight of the haunches. Partial ease is thereby secured, and with the new sensation, a numbing torpor creeps over the animal. Its feelings are soothed by present pleasure, and the senses, thrown off their guard, grow dead to all outward impressions. The victim of former ages, when taken from the rack, must still have endured agony; but the lull occasioned by the cessation of acute torture threw the sufferer into a lethargy, which is reported to have resembled the luxury of sleep. So is it with the horse. The forefeet are still undergoing torment; but, under partial relief, the animal seems to doze, or becomes unconscious to the facts around it.



THE HIND FEET ARE EASED IN THE GUTTER.

The horse is tranquilly luxuriating, and cozily reveling in the moments of forbidden ease, when the groom quietly returns to the stable. His eyes rest upon that "abominable wicious creatur, agin brakin o' the law!" The animal has actually dared to indulge in so much ease as

instinct can discover among the cruel invention of centuries by which its body is surrounded. The quadruped excites the more anger by seeming to enjoy its wickedness! The groom is infuriated by the contemplation of such depravity! Beer and tobacco stimulate his indignation. He creeps slyly toward the whip, and commences to lash the culprit.

Some persons may be inclined to suppose the being who has so recently deserted his post, ought to look indulgently on what he conceives to be the fault of another and of an inferior animal. But the vile always are the pitiless; for charity is the foundation of all goodness. The lash is plied with energy—the groom, between every blow, lamenting "that he can't step away for a few moments, 'thout the plaguey brute being at its old tricks agin." The thong curls round the quivering and perspiring body. But severity in these cases is useless. The animal has discovered a partial solace for its misery; it cannot choose but indulge its pleasurable knowledge at the very next opportunity.

The stabled horse, however, has not only to stand upon a slanting pavement through the day; it must throughout the night lie upon a similar incline, rendered slippery by a covering of dry and polished straw. Did the reader ever attempt to repose upon a bed slightly out of the horizontal? The body cannot rest on such a couch. The sensation communicated is, an incessant fear of slipping off. The sleeper is constantly wakened up, with a vivid impression that he is falling, or has fallen, on to the floor. The night is passed in discomfort. But what is the excitability of a human being, when compared with the excessive fear which haunts the most timid of all created lives?

Man, when in a bed of the above description, naturally grows restless; the bed-clothes are disturbed, and the body laid in an opposite direction. All will not allay anxiety; at last the would-be sleeper is obliged to remain contented with occasionally nudging himself higher on to the pillow. Like man is the horse in many things, even as though the animal studied and mimicked its master. Yet the inflation of pride hails the resemblance as an insult, and regards animals as things created for use, and doomed to be subservient to the caprice of mortal pleasure.

Precisely as man would behave, did he chance to get upon a slanting bed, the animal conducts itself, only with such difference as the circumstances enforce. The human being reclines his head upon a pillow. But the horse sinks the head while it slumbers. Man, therefore, nearly touches the board situated at the topmost part of his resting-place. Three feet, or even a larger space, may divide the quadruped from the stable wall which forms the extremity of its couch. The floor on which the creature lies is strewn with straw. That condition, however, rather

aggravates the inclination of the resting-place, for dried and glossy stems of a circular figure accelerate more than they retard the backward gravitation of the body.

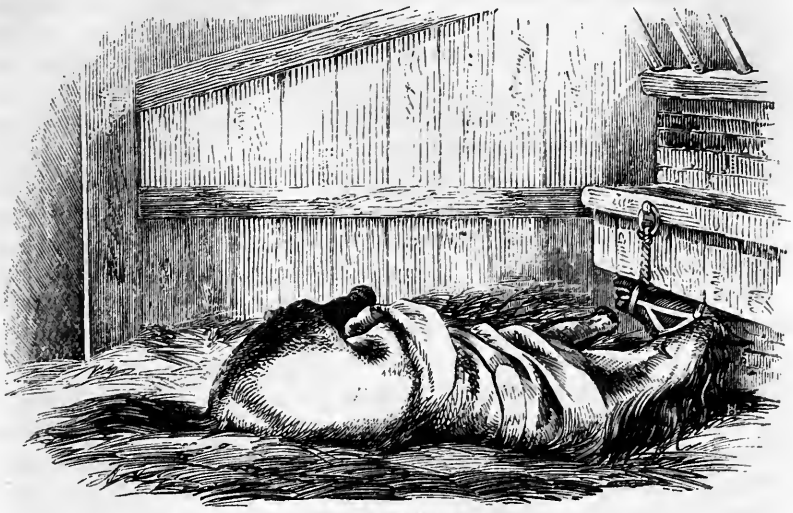
The creature therefore—unable to reason, acting under the impression that its body is continually sliding backward—endeavors to recover its original position by nudging itself repeatedly forward. The horse has neither light to see, hands to feel, nor sense to measure the distance. Imagination is the only dependence which it can boast of. The advances become energetic in proportion as the supposition which provokes them is annoying. The annoyance is regulated by the irritability of the quadruped. Some stable inhabitants grow more morbidly nervous; with these, the advances are proportionably frequent; so that the head of the captive, guided by the collar-rope, is speedily brought into violent contact with the further end wall of its compartment.

Not comprehending the meaning of the blow, but suffering from pain and fright, the animal attempts to rise. The commencement of this movement always is the elevation of the head, which, after being raised, is strained backward. This action is a necessity of its existence; and, dreaming of no danger, the quadruped essays to fulfill the natural law. The head, however, which has struck the wall of the stable, must at the time he immediately under the manger. Imagining no impediment, the animal exalts its crest with that impetuosity which characterizes all the motions of the horse. It strikes against the manger, and a heavy concussion sends the member into its original abiding-place.

The stricken creature cannot comprehend the reason of those blows it has received. But it is often chastised for nothing, so beating is to it almost a matter of course. It crouches in terror for some moments, no doubt hoping its tormentor may move onward. Then, as the strained senses can detect no sound, it ventures once more to raise its head. The result is the same as it was before. The horse, after repeated efforts, becomes alarmed. Mad with fear, and wild with desperation, it now exerts its utmost strength. The contention may continue until the groom enters the stable in the morning, when, bruised and panting, its head swollen and bleeding, its strength exhausted and almost its life expended, the wretched animal is discovered prostrated upon the pavement.

This consequence of confining an animal in darkness is the serious, and probably the permanent, deterioration of property. At the best, the services are lost for many days. In any case, time must be allowed for the necessary recovery. Few, very few people have the generosity to recognize, and even fewer still are educated to perceive, that a life has been for many hours breathing in agony, and that the existence may

hereafter, notwithstanding all the present state of art can accomplish, probably drag its wretchedness about the world in a crippled condition



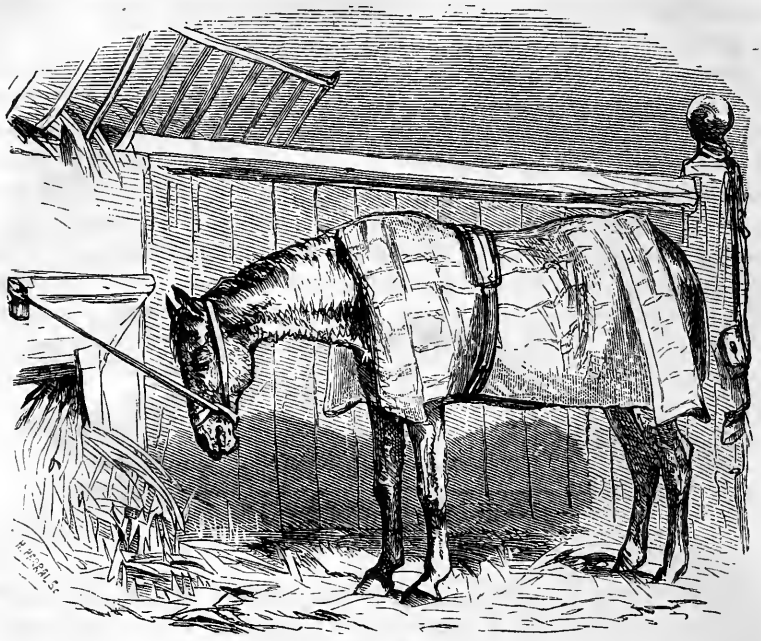
CAST UNDER THE MANGER.

No person living possibly will, when inspecting the maimed and disabled horse, reflect upon the fate which dooms the animal to years of sorrow, laboring through the lowest species of earthly trial; no one will heave a sigh that such a fate overtook a placid, gentle, and obedient creature, which was dangerously and cruelly confined during the time of serving a being who was bound to study the necessities and administer to the happiness of the life over which he had assumed absolute authority.

Other evils also spring from obliging the horse to sleep on a surface which is not level. The head of the animal being fastened to the manger, it has no choice but to couch where it stands, or to remain erect and endeavor to sleep in that position. There are quadrupeds which adopt and which maintain the last alternative: their bodies never repose on earth, until their injuries and their wrong are engulfed in the common doom.

It is not every animal, however, which can hold to such a resolution, in spite of the aches and agonies by which it must be enforced. Certain creatures, feeling their bodies glide backward, rather facilitate than endeavor to counteract the motion—hoping to soon rest upon the gangway, which experience has taught them terminates the stall. Others sleep so soundly as to be unconscious of the movement; while a third class, having attained philosophy through a life of misfortune, pay but little regard to the circumstances around them. In all instances the frame

descends the slope, till the quarters pass the gutter and repose upon the gangway.



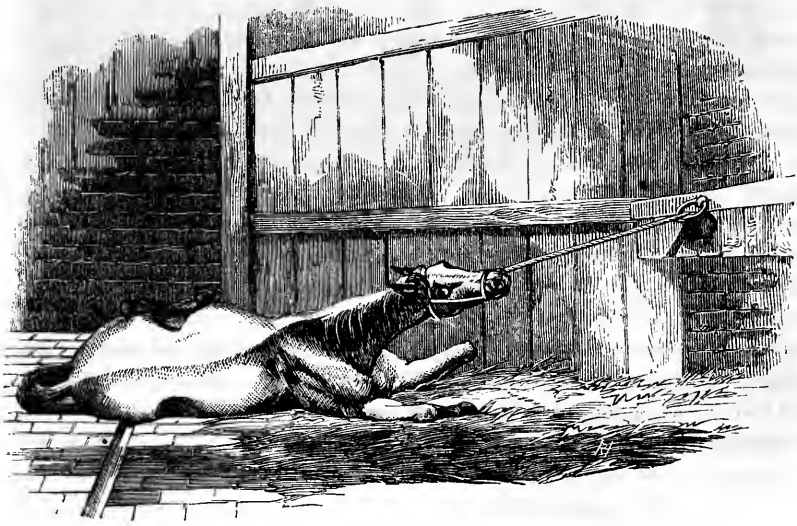
A HORSE STANDING WHILE IT SLEEPS.

Yet, before the body can move such a distance from the manger, the neck and the collar-rope must both be strained. However, finding its body, at length, to be comfortably located, the animal meditates composing itself to sleep, which is not to be done while the neck is outstretched and the chain is raised far above its natural position. To accomplish this, the muzzle must be considerably lowered and the neck be retracted; but, before either can be done, the collar-rope must be loosened. It is obviously impossible to change the attitude while that fastening remains in a state of tension: the position in which the horse invariably sleeps cannot, therefore, be assumed.

In this dilemma, the intelligent quadruped determines to rise and to return to the manger. But a natural law has ordained that before the horse gets up from the ground, the head shall be thrown backward; thus lightening the weight upon the fore quarters, which parts are always first raised. The straightening of the front limbs is thereby facilitated. But this movement cannot now be put in practice because of the rope which retains the neck outstretched. Struggles are useless;

the position is fixed, and the creature is powerless to alter it. The limbs are free, but these can only be used to kick and to aggravate the pain of the situation. The animal is a prisoner, and so it must remain, vainly contending with its doom, and exhausting its energies in fruitless efforts to escape.

Assuredly, he should have possessed an enlarged capacity for evil who first conceived the notion of making a living creature, which was conspicuous for its strength, its activity, and its timidity, exist in a niche; to have its head tied up by day and by night; and subsequently doomed it to rest upon a floor which sloped in a painful and an unnatural direction. No surer means could have been invented of shortening the life, of deforming the body, or of injuring the limbs of the creature in whose prosperity man conceived he had "a property." Arms of all kinds, and of every description, the quadruped might have been safely trusted with;



LYING ON THE GANGWAY.

but to require of activity, that it should be fettered and forego all motion; to demand of timidity, that it should be bound or imprisoned, and not display sensibility; to ask, that strength should endure and not attempt to struggle, was surely expecting too much from an inhabitant of a world in which fear, as the natural instructor of organized beings, is universally prevalent.

The horse, thus located, was only presented with the ready means of doing injury to itself. It was provided with the only weapons which

nature had empowered it to employ. A more unwholesome, a more unnatural, or a more dangerous abode for any of the equine race than the stall of a modern stable, it would be impossible for the utmost stretch of the most excited malignity to imagine. Still, daily accidents, which must have occurred for centuries, seem to be incapable of instructing mankind, where the welfare of another and of an inferior being is concerned!

Animals have been lamed; have lost the power of vision; have bred terrible disorders, and have been found stretched in death upon the straw bed, in consequence of the folly which has persisted in building modern stables. Such accidents must, as a necessity, continue so long as these edifices are erected. They are totally unsuited for the creature which they torture, cripple, and confine. Yet, because such abominations are sanctioned by custom and approved by ignorance, it is far more than probable that the author's exposure of their unfitness will be read with amusement, and admitted to be just; but the scourge which is recommended by its existence and patronized for its convenience will still be perpetuated. It may continue to disgrace this country for more than another century, although the judicious outlay of a few shillings would greatly amend even modern stables. Banish the stalls, and divide the interior into loose boxes. Lower the mangers and the hay racks to the floor. Soften the food before presenting it to the quadruped; and abolish the loft, now placed over where the animals repose. Allow the entire space, from the ground to the roof, for the huge lungs to breathe in. Improve the drainage. Warm the building by means of a slow combustion and by water pipes. To effect all this should not cost very much; and, as his reward, man would gain the longer service of his slave, together with an inward approval, springing from a consciousness of having done his duty toward the meekness which Beneficence has intrusted to his keeping.

CHAPTER VIII.

THE SO-CALLED "INCAPACITATING VICES," WHICH ARE THE RESULTS OF INJURY OR OF DISEASE.

THE word "vice," when applied to the horse, represents any quality which may annoy the prejudices of the groom, or may prove displeasing to the expectations of the master. It is purely ridiculous to suppose the animal can possibly be "vicious." The simple nature of the quadruped is gifted with no power to distinguish good from evil. It lacks the imagination to conceive those acts which man esteems to be heroic or to be grand. Were the creature able to embody ideas, the race would possess the ability to combine; anything approaching to the present patient docility would then be exchanged for open rebellion against the earthly tyrant.

Human intelligence, however, seems to derive a strange pleasure from regarding the obedient and most forgiving horse as a "vicious," a savage, and a most relentless "brute." There seems to exist some happiness in the exhibition of those cruelties which such notions alone can justify. It is true that such unseemly contests do not invariably terminate in favor of him who always originates the strife. The master, who could by mildness have retained his power, by resorting to blows occasionally becomes worsted; but the horse, although it should prove victorious, always has to grieve over its triumph. The prowess of the quadruped draws down the heaviest punishment of other members of the race, an individual of which the animal has defeated.

A great many "accidents" would be avoided, and, probably, the amount of happiness permitted to mortals would not be materially lessened, could the populace be instructed to think a horse was endowed with senses, was gifted with feelings, and was able, in some degree, to appreciate motives. Such powers are enjoyed by all the higher grades of animal life. In asserting this, there is not the most distant desire to confound the living creature with the intellectual being. Reason believes in and can contemplate a futurity. The human eye takes easiest cognizance of forward objects. The vision of the horse does not behold

objects directly in front of its head, but glances backward, without necessarily turning the face. Man can imagine events ere they are embodied facts. An animal's ideas are strictly limited by its individual experiences. By these, its mind is moulded and its conduct is shaped. It has no power to forget. The past, with it, is the present. To suffer once, is to endure a constant dread of suffering again. To be pained, is always to fear a repetition of the agony. What has been, *is*, so long as memory shall last; for the quadruped can conceive no future on which to fix its thoughts, or in the contemplation of which to escape from the misery that begirts its existence.

Would those persons who have no interest in any contrary opinion, adopt the above view of the subject, how very much of danger and of unpleasantness might the good people escape! It is not unusual to behold an elderly gentleman, of the highest respectability, flog most unmercifully, in the public street, some inoffensive steed, until a reddened face announces temper to be lost. Foot passengers look on the spectacle; but no one, even in thought, condemns the needless severity. Hospital surgeons, however, can testify to something more permanent than temper being occasionally sacrificed through these unseemly contests. In such cases, man has provoked his fate. Reason, in vain, shows a broad and pleasant path, where dwells security. Passion blinds humanity, pride justifies passion, and the refuge is unheeded!

Will the reader kindly grant the author patience while the present subject is pursued a little further? To prove the horse cannot, in any accepted meaning of the word, possibly be "vicious," it is only necessary to comprehend that vice of every form, whether it be lewdness, drunkenness, gluttony, or malice, always, in some gratification, seeks for a personal reward. It is no more than the concentration of selfishness. It always presupposes an intention. The difference between crime and insanity lies only in the idea of some recompense to be secured by the commission of a particular act and in sin without a motive. When the horse was created without ability to comprehend a future, the power to be "vicious" was, with the possibility of a contemplated motive, withheld. The creature, being unable to anticipate consequences, lacks incentive; therefore it can display no "vice," though it may exhibit insanity. The animal, however, may not always please its master; it is the "vice" of authority to call trivial offenses by harsher names than the actions in fairness should receive; but no man has, hitherto, stigmatized the horse, which he deems "vicious," as insane.

Having premised thus much, the author will attempt to explain some of the worst forms of equine "vice."

"Rick of the back" and "chink of the back" are terms which repre-

sent some indefinite injury to the spine of a horse. The quadruped is essentially a beast of burden. The load is commonly supported on the back. It is so, entirely, when the creature is used for saddle purposes; and, in the heavier species of draught, the balance always inclines toward the back of the "wheeler," while the spines of some coarse horses are sadly tried when they are obliged to trot back with a heavy, springless cart, after the load has been delivered.

It is the general custom of this country to place young cart-horses between the chains, or, in other words, to employ such animals only in the capacity of leaders. The practice is equally wise and humane. The draught is not easier as the propelling force is situated distant from the load, but the pull then is entirely upon the collar, and no weight is allowed to rest upon the immatured and yielding spine of a youthful body. These benefits, however, are all rendered nugatory by the conduct of most carters. Such men are, generally, of Herculean proportions, and are conspicuous for no lightness of person.

The cart, dray, or wagon leaves the office with the driver in his proper place, walking beside the horses. Here he continues until the load is delivered; but, on the return journey, he is apt to experience fatigue. He does not reflect how far his individual sensations are likely to be shared by the animals which have been drawing some heavy burden during the time he has been simply walking at their sides. No! Seeking his own ease, he casts his body upon the back of the most forward, and, therefore, upon the youngest horse of the team. His seat is the loins, or directly upon the weakest portion of the vertebral chain. There he rides, squatting with his legs dangling upon one side. No doubt, the situation is pleasant; but where all is conjecture, the reader must decide how far the repetition of such an act may account for rick of the back being common among the heavier kind of horses.

It was otherwise with the old fly wagons of a former day. The driver of those vehicles used to have fastened behind his load a stout pony. When fatigued, the man would mount the supernumerary animal, and, riding beside his horses, would rest his own legs while he continued to guide his team; an act which the London carter is, by his position, disqualified for performing. While the driver rests, the "luck which attends on ignorance" must take care of the vehicle.

The spine of the horse, in a natural state, is characterized by a highly elastic property. As every form of mechanism is exposed to injury in proportion as it approaches to perfection, man should not feel surprised if the delicately-organized back of the animal is not exactly equal to all the usages unto which civilization has compelled it to submit. Indeed, when we feel how unscrupulous the human being can become, if urged

onward by the pursuit of gain or prompted by a sense of personal indulgence, it will hardly provoke wonder that the creature doomed to be the helpmate of the avaricious, should occasionally suffer in their service.

Rick or chink of the back is among the most common and the least understood of equine affections. Its symptoms are confounded—one and the same name being employed to indicate every stage of the disorder, thus confusing inquiry. Those effects which result from organic change are regarded as the promptings of that "viciousness of spirit" with which it has pleased mankind to credit the horse. The liberality of mortal imagination is extreme, especially where causes have to be assumed. Grant man the right to conjecture, and there is no mystery in nature for which he cannot account. Thus, the sharp pangs of agony which induced the contortions of a dumb creature were conjectured to be the gratification of an innately "vicious disposition." This pretended explanation has remained unquestioned for ages, abusing the intellect of mankind and hardening the hearts of those whom it was thought to enlighten. No doubt many very worthy people will feel much inclined to quarrel with the book which presumes to question the interpretation that generations have approved and time has sanctified.

However, to expose the manner in which the personation of meekness has been abused by the arrogance of ignorance—certain animals are supposed to indulge a morbid habit, or "vicious" propensity, which is, by the lower orders, spoken of as "kidney dropping." Creatures thus viciously disposed are generally aged, and are devoted either to heavy draught or to harness purposes. They are sometimes met in those stables where horses are let out by the "hour, day, or job." One thus afflicted will be drawing a gig along some pleasant country road when "the vice" shall be suddenly displayed. The attacks may appear in rapid succession, when they render the life worthless; or they may only come on at distant intervals, being separated by long periods of apparent soundness. No jockey, however knowing he may be in his vocation, or however boastful he may be about "my 'sperience 'mong 'orses," can, by any visible sign, announce the day or foretell the hour when a particular quadruped will be afflicted with an attack of "kidney dropping."

The horse shall be harnessed to some light vehicle, within which may be seated some tradesman, by whose side smiles the eldest daughter of a numerous family. The animal is not overloaded, and seems to be journeying pleasantly at its own pace. He who holds the reins is delighted; while she who sits beside him ever and anon leans forward to pat the croup of "the dear pet." The sun is shining; the birds are singing; the trees are bright with new foliage; and the country smells

most pleasantly fresh; when, suddenly, the gig is brought sharply up, and "the wicked beast" is discovered squatting upon its haunches like a dog.

A "KIDNEY DROPPER."

This is an unnatural position with the horse. It is perfectly true, animals are made to assume it in the circle of most amphitheaters; but if the reader remembers, he also beheld men, in the same place, put their arms and legs in positions which were quite as unnatural to humanity in general as sitting on their haunches possibly could be to the community of the equine race. What, therefore, may have been exhibited at a circus signifies nothing, when regarded in its fitness for universal application; in all other spheres, sitting on the haunches, when exemplified by the horse, must be accepted as proof of bodily derangement.

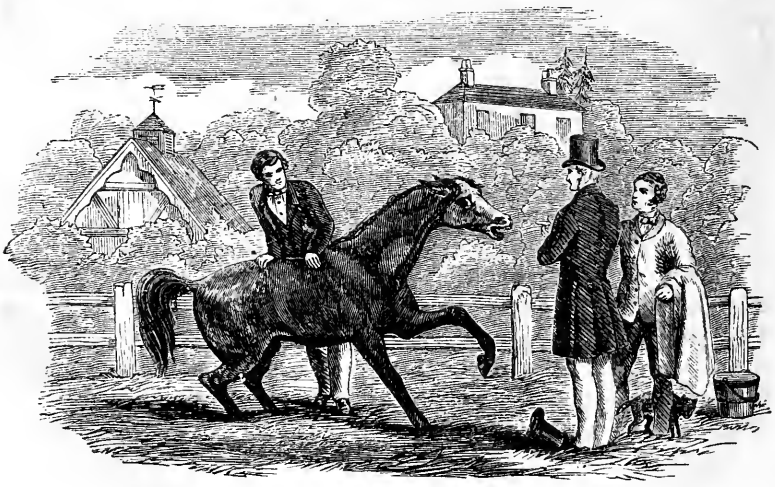
If the attitude of the animal be observed, the hind limbs will be seen to have fallen in such positions as suggest no notion of comfort or of design. They may cross one another, or they may be sprawled out on either side of the body; they are never arranged with that grace and care which indicate the attitude to have been deliberately assumed. Moreover, should the skin be pricked with the point of a pin, no sign of sensibility is usually elicited from the hind quarters. Strike the prostrated members, and no evidence of pain follows the blow. The posterior portions of the body, obviously, are dead to this world and to its malice.

However, do not fuss about the horse; allow the sufferer to remain undisturbed where it has fallen. Have patience with the distress which

no cruelty can quicken. Loosen the harness; remove the shafts; procure some water, and permit sensibility to allay its parching thirst. After a short space, the quadruped may get up of its own accord. No time has been lost; but disease has not been aggravated by needless torture. When the creature rises, the fit has passed; but the author doubts if the recovery can then be pronounced complete. He would, certainly, brave "an accident" who should essay to drive a horse but recently recovered from an attack of "kidney dropping," though this hazard may be frequently incurred with apparent impunity.

Allow the injured quadruped to remain in the stable, undisturbed for the night. The following morning will be time enough for its examination; for the disease under which the horse languishes is of a nature that cannot be affected by the lapse of a few hours.

The next day, having selected a piece of clear ground, cover the spot thickly with straw, and have the horse led on to it. The services of a veterinary surgeon are not imperative. The proprietor may himself conduct the investigation: or, should he feel distrustful of his own ability, any person possessed of the necessary amount of confidence may undertake the active duty. All idle spectators should be first requested to retire. Then the investigator takes his position as close to the quadruped as possible. He runs the forefinger and thumb gently over the superior spinous processes of the vertebral chain, or down the center of



TEST FOR RICK OF THE BACK.

the back. This action is repeated several times, additional force being brought to bear with each succeeding trial, until the whole strength of

the operator is exerted. While he is doing this, the person who undertakes the investigation fixes his attention on the head of the horse. If, upon pressure being made on any particular spot, the ears are laid upon the neck, or the crest is suddenly elevated, the fact must be mentally noted. The trial should be renewed, and if the like symptoms be elicited, the conclusion naturally is, that the seat of injury lies immediately under or very near to the place indicated.

This point being ascertained, the operator puts a hand on either side of the tender part, and casts his full weight suddenly upon the spine. Such a proceeding, to be demonstrative, must be rapid and energetic. Horses, under the sudden pang thus produced, have shrieked in agony. Generally, animals crouch under the torture, and burst forth into copious perspirations. The author knows of no instance where a desire to employ the teeth has been exhibited, although there is no predicating in what manner a creature may behave under the powerful wrench of actual torment. He, however, who undertakes such an inquiry, must be prepared for every eccentricity; and, while regretting the necessity which obliges agony to be inflicted on a gentle and a timid creature, he should also be far above those coarse and brutal punishments which are too frequently indulged to check the writhings of the potent suffering.

The affair is thus decided. The spine has been injured, and the spinal cord which it sheathes is also involved in the lesion. Horses in such a condition are commonly, with that utter want of morality which in every species of horse transactions appears equally to sway all degrees of the human mind,—such animals are commonly cast upon the market, or publicly disposed of by auction. The cause of sale is willfully concealed: the purchaser is designedly imposed on, and his life is knowingly endangered. Persons of every class, from most noblemen to the ordinary tradesman, engage in this form of arrant cheatery. They swindle their sense of rectitude by giving no warranty at the time of sale; but the law presumes that everything sold contemplates a fitness for certain purposes; whereas a horse liable to an instantaneous loss of power in its limbs is dangerous in any employment. Yet so flimsy an excuse seems to justify the reputedly *honorable* man extracting, possibly, the last penny from the pocket of or imposing upon some struggling and needy individual.

The animal, being sold, is soon found to be worthless; it speedily becomes the property of the lower class of horse-copers, to whom that which they call a "kidney dropper" is a real prize. The quadruped is sold "cheap" to people of worldly respectability; but it is seldom retained long by its new owners. It is rebought, for little more than its real value, by its former proprietors, to be once more palmed off on

some aspiring equestrian. After such a manner—selling in the dearest market and buying in the cheapest, a maxim of very questionable morality—a large profit has been realized by a carcass which was actually worthless.

The author, never having dissected the spine of a "kidney dropper," cannot positively say in what condition of parts the disease resides. A knowledge of anatomy, however, aided by a comprehension of the symptoms, demonstrates the vertebral chain is the seat of injury; while the want of motion which affects the hinder limbs indicates the spinal marrow to be suddenly pressed upon. Subsequent recovery likewise proves the injury to the nervous center is of no more serious a character; while the perfect restoration of the animal's power shows that the pressure is either caused by displacement, or by such a partial fracture as rest will enable nature to surmount. This explanation, deduced from observation, and based upon inferences drawn from the study of effects, will to most persons appear so probable as to be perfectly satisfactory. Still, there do exist minds whose faith in an antiquated name it is hardly possible for any argument to destroy; the generality of readers, therefore, must grant the author patience, while he, most probably in vain, attempts to disabuse such persons of their strange belief.

The term "kidney dropping" is an ignorant combination of words to which no absolute meaning can be attached. The kidneys are no more than the renal glands. The horse which falls exhibits no sign of urinary disease. These organs are usually healthy; of that fact the writer has positive information. The kidneys, moreover, are not *specially* endowed with motor nerves; no physiologist has hitherto asserted that these glands are in any way concerned in the movements of the body. The renal organs have, by the French, been unwarrantably removed, without the general sensation or the body's motion being affected. When the horse drops, not only is motion gone from the hind limbs, but sensibility is lost. The quarters have dropped, not in accordance with the will of the creature, but because the posterior division of the body was released from the control of the sensorium, or was suddenly cut off from the influence of volition.

The spinal marrow regulates the motions of the limbs, being subject only to the dictation of the brain. Volition and motion are in these organs associated, but not absolutely united. They both are capable of separate existence, though the mechanical derangement which destroys the one usually puts an end to the other. Nevertheless, they can exist apart. Convulsion exhibits motion, as independent of the will; while painful paralysis displays sensibility increased, although power of movement has been lost. In "kidney dropping," consciousness is retained;

but motion and sensibility have departed from one-half of the trunk. This result indicates the nervous current to be partially checked, and points to the great medium of transmission as the seat of injury.

There is, however, another form of chink in the back, where the spinal marrow is in no vast degree involved, and in which the animal exhibiting the affection is not generally devoted to harness purposes. The horse is commonly showy in appearance, and is usually disposed of exclusively for saddle uses. But the existence of a disease is not denoted by any outward sign; therefore its presence is sneered at as a positive impossibility. Quadrupeds, thus disordered, are, by the generality of horsemen, condemned as "irreclaimably vicious."

One of the bones of the spine has been rendered loose in consequence of the ligaments being overstrained; the animal has been abused in some manner. The ligaments, when in this condition, are acutely painful; though no visual disorder may be observable to the post-mortem examiner, nevertheless the slightest weakness in such a structure may, during life, occasion the severest agony. The bone is not fractured; but one of the vertebræ, through the leverage of its superior spinous process, may have been wrenched slightly to one side. This may not affect the appearance of the quadruped; neither may it elicit signs of pain when the weight is evenly seated upon the back; therefore, only during the act of mounting, the drag then being entirely to one side, it occasions the most poignant anguish.

The horse, being dumb, of course cannot explain its sensations; nor can it appeal to the forbearance of its master. Its ailments are entirely subjected to the merciful consideration of man. The animal's actions, therefore, are always liable to be misconstrued; the promptings of torture are frequently confounded with the exhibitions of the worst forms of "vice." Thus, a creature with the ligaments of the back strained is always condemned as an inveterate kicker; because the drag, produced by the weight of the rider resting on one stirrup, occasions so sharp an agony as alarms the quadruped, and naturally excites a determination to repel some imaginary enemy. The creature, consequently, commences to "lash out" with its utmost energy. This violence is repeated so often as the owner has occasion to remount. The action is always sudden, and not to be inferred from the previous aspect or behavior of the nag. It is, therefore, attended with the greater danger, not only to the proprietor, but also to those who may be collected about the horse.

A good illustration of the above facts occurred a few years back, in front of certain spacious "rooms," then much frequented by "the fashionable world." A cavalry officer, recently returned from India, went to hear a morning concert at the place just alluded to. There he met some

old friends, who had changed their residence since he had left the country, being then located at Richmond. The party had ridden to London; the military gentleman was pressed to return, and to spend a pleasant day at the suburban villa. A servant was dispatched to hire a horse; the man soon returned with a rather small, but very showy, black nag.

NEVER MOUNT A STRANGE HORSE IN A CROWDED LOCALITY.

The officer thought, before the concert was ended, he would retire and form the acquaintance of an animal he was shortly to ride for several miles. It was well he did so; for no sooner was his foot placed in the stirrup, than what previously appeared to be a remarkably steady quadruped began to "lash out." The action was continued, creating terrible confusion among the crowd which thronged the street, and ultimately throwing the would-be rider. The military gentleman was probably more hurt in feelings than in person by the incident; although the latter circumstance formed an excuse for not journeying to Richmond, and the occurrence, on the following morning, was circulated throughout London as a newspaper paragraph, bearing a heading of "SERIOUS ACCIDENT TO A CAVALRY OFFICER."

Violent, however, as may be the resistance provoked while the foot is in the stirrup, the seat of the saddle is no sooner attained than composure is restored. When the rider is once fairly on the back, the steed assumes its natural timidity, its docility, and its obedience. It is then transformed into all the most fastidious proprietor could desire. That circumstance has induced some horsemen who were more thoughtful than the generality of the race, to change the habit usual in this coun-

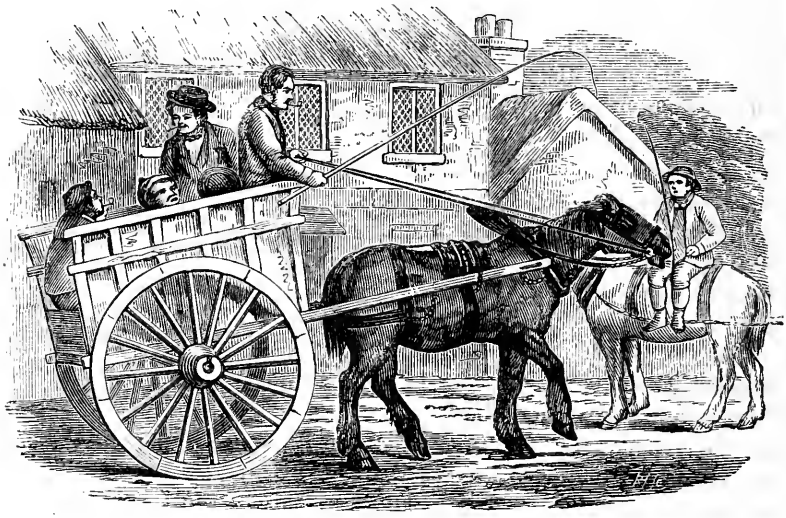
try. Such persons have tried the effect of mounting upon the wrong side; this has usually, for a certain time, been attended with perfect success; but the custom, after a space, has seemed to involve the sound ligaments, when the kicking has been renewed with more than double vehemence. A horse which kicks in the way described, should always be transferred to harness work, when no vast weight being upon the back, the quadruped generally behaves admirably.

Rick or chink in the back is, however, the common property of creatures of heavy draught, and, with such a description of horse, the consequences are usually more marked and much more severe. The reader will readily imagine that a "kidney dropper," falling suddenly while pulling a weighty load, can hardly escape "accident." Therefore, quadrupeds of the coarser breed, and thus afflicted, rapidly come into the possession of those who do not scruple to trade with misery; and, as this form of disease enables the sufferer to appear with a blooming coat, as well as with a carcass carrying a quantity of fat, the copers often reap a rich harvest by their unscrupulous dishonesty.

A common cause of these accidents is the thoughtlessness or the greediness of horse proprietors. It has become almost a custom, with needy masters, to send out one-horse carts upon two wheels with long reins attached to the harness. The motive which induces such silly behavior is obvious enough. The tradesman imagines that by the animal being hurried back after the load is delivered, time can be saved. He does not consider that the limbs, which have been strained dragging some fearful weight to a particular spot, may, before another task of magnitude is imposed, possibly require the comparatively easy walk back to recover the full use of their functions. He probably, and it is hoped actually, has never reflected that perpetual fatigue soon exhausts, and ultimately disables, animal energy.

The cart horse, moreover, being forced to quicken its pace, is urged beyond the habits and the uses for which man has bred the creature. It is compelled to execute a duty for the performance of which its bodily formation renders it totally unsuited. The poor animal that is called upon to fulfill opposite uses, generally endures the shorter period: because of the excessive labor it is obliged to undergo. The custom, therefore, accords with the saying, which illustrates waste and extravagance, by supposing a candle to be lighted at both ends. The wretched horse is now a cart horse, loaded to the extent of its ability; next, it is expected to display the activity of a gig horse, although it is harnessed to what badly represents the lighter vehicle; while, the long day of continued toil being ended, the slave is required to trot briskly homeward with a crowded load of human laborers.

The dismissed cart is generally well burdened, after the hour for striking work has arrived. The men usually leave off their toil as the first stroke of the clock is heard; but no such relaxation is permitted to the creature which, of the many over-worked bodies, has toiled the hardest and needs rest the most. The quietude of London suburbs is regularly broken with the thud! thud! thud! produced by the heavy shafts pulling down the chain, which has been jolted upward by the ungainly trot of the tired slave. The sound declares the force which falls every few moments upon the same part of a living spine. The falling of a single drop of water, long continued, on the same place, can occasion direst agony. The Inquisition illustrated that fact. But the cart is heavier than many drops of water. Any one who has beheld a spectacle of this description, can have hardly failed to observe the faintness, mingled with suffering, which propels the load. The driver commonly stands up near to the front; he jags the reins and loudly cracks the long whip, that fright may quicken the movement of those limbs which tire seems to glue to the stones over which they pass.



THE COMMON CAUSES OF RICK OF THE BACK IN HEAVY HORSES.

Rick or chink in the back is, generally, generated by that want of sympathy shown by the community of proprietors in regard to their property in horse flesh. It would be a legitimate cause for wonder, were horses not a hazardous investment, when breathing and living frames are subjected to the united effects of ignorance and of prejudice.

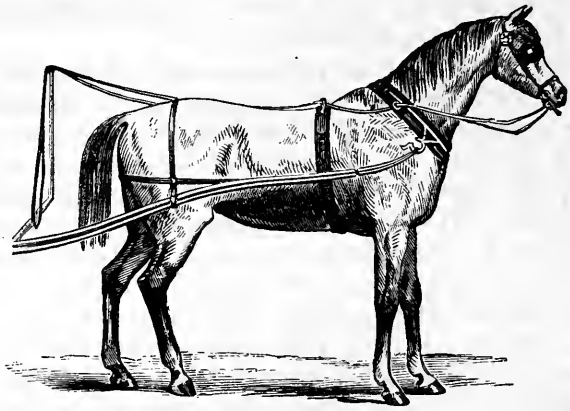
Upon the earliest indication being perceived of the spine having been badly injured, the horse should be instantly thrown up for at least six months. The animal ought not to have a layer of pitch, rosin, etc. smeared thickly over the back, and be turned out to take its chance upon a green diet. But it should be placed in a roomy, loose box: it should have the hair cut off close over the seat of injury, and the place should be constantly moistened by means of cloths dipped in a lotion, composed of tincture of arnica, two ounces, and water, one pint. This remedy, with softened food of the most supporting kind, should constitute the treatment for the first month of recovery.

At the end of that period, we may assume that inflammation has been subdued; thereupon the measures adopted may be changed. Some compound soap liniment should be rubbed on the surface every morning. Should the application blister the skin, the liniment must be withheld for a time; but so soon as friction can be quietly endured, the stimulant must be renewed. All this while, the quadruped should be well fed; but medicine should be strictly withheld, grass and bran mashes being solely employed to regulate the bowels if their action be sluggish.

When morbid sensibility no longer exists in the spine, and moderate pressure with the fingers can be borne upon the back, the liniment may be discontinued; but the restoration is to finish with the repeated use of liquid blisters. One side of the spine, near to the seat of injury, is first to be acted upon; when the action of the vesicatory appears to be subsiding, the other half of the back should be attacked. This plan must be pursued till the fifth month has expired, the horse being sustained upon the best and most nutritive food. After this period has elapsed, a handful of ground oak bark should be mingled with each allowance of provender. The animal, during all this time, never being flurried, or allowed to leave its ample stable.

Upon recovery, the quadruped ought never to be employed for that same kind of service in which the injury was received. No weight should, subsequently, be placed upon the back; for the spine which has been once injured, can never, by human art, be restored to its pristine soundness. However greatly the animal may have been prized, even as a hunter, it is safer and much more profitable to doom the steed to the collar, in which last employment old hunters particularly delight in exhibiting their highly-prized excellences of action. Many a horse that appears in the London streets running before some brougham, and which, by the gayety of its spirit, excites the admiration of the foot passengers, will, after death, be found to have one or more bones of the spine joined by osseous deposit, proving that the back, during life, must have suffered serious injury.

Horse owners, however, should be very careful, not knowingly to risk chink or rick of the back; for such an "accident," according to its intensity, may reduce the animal of fabulous price to an article which shall literally be almost valueless. It brings down the steed which excited universal envy, to the cripple which no honest man would sell, and which no prudent man would keep. The mischief once established, too often sets science at defiance, for the rick, when bad, is terribly apt to terminate in fearful fracture of the spine.



THE PATENT TRACE-SHAFT.

The above illustration is copied from the heading to a bill which announces a patented invention, which is manufactured by Messrs. Gibson & Co., of Coventry Street. The novelty consists in the shafts being so made as to render the employment of traces unnecessary when the animal is driven in single harness. The weight of the vehicle, or so much of it as usually rests upon the back, is dependent entirely from the collar. For horses troubled with any of those "vices" which indicate the spine to be affected, this kind of harness affords, at all events, the most rational hope of working such creatures without provoking the annoying and the dangerous symptom.

When it is remembered that all animals which have been worn out under the saddle, old hacks and hunters, are doomed to end their lives in the more ignoble duties of propulsion, it is not surprising to find many of the quadrupeds, sold for double or single harness, are affected with those complaints which indicate the back to be disordered. The worst exhibitions are confined to gig horses. Few carriage or brougham horses are thus disabled; that fact almost proves the author's inference, as well as demonstrates the utility of that novelty which was in the last illustration introduced to the notice of the reader.

As heavy quadrupeds are likely to be similarly diseased, the carter should be informed of the fact, and cautioned against ever riding on the backs of his teamsters. So also with lighter animals, the groom should be forbidden to mount the horses which are very liable to this misfortune. The shafts of a cart are of course calculated to aggravate this malady; but such a horse may perform easy or reasonable labor between the chains for a long succession of years; only, when the pull is severe, the driver should go to the head of the disordered teamster, to prevent any undue strain upon the back, or it would be certainly better if, during the period of exertion, the chains were unhooked.

It is strange, when the importance of the spine to the utility of the animal is considered, and when the well-known fact is regarded that the lowest class of copers make a species of property out of horses suffering from rick of the back, that this particular region receives no special attention during a quadruped's soundness being subjected to the test of an ordinary veterinary examination! The creature's head, tail, eyes, teeth, shoulders, haunches, limbs, feet, etc. would all be scrupulously investigated; but the back, on the soundness of which the utility of the body must depend, would probably be only honored with a passing notice.

Animals, however, which are ricked in the back, are generally sold through one of those Horse Auction Marts that abound in the metropolis. Such places offer great facilities to dishonest practices, and afford much encouragement to the class of copers. These persons never care to possess a sound horse. They have always some bargain ready to be imposed upon a novice; and the ignorant in horse flesh are ever eager to snap at any supposed "awful sacrifice." The uninitiated is a frequenter of auctions. Being there, he walks down the gangways, staring at the equine chattels; going dangerously near to their heels, but not venturing up to the head of any quadruped. It is not long that this person is permitted to stroll unattended in such a sphere. His notice is soon directed to "one of the right sort." The groom is ordered to bring the animal into the yard, and show "its action" to the gentleman.

While the groom is putting on the bridle and removing the cloth, the uninitiated accompanies his new companion into the yard. The coming of the animal is soon announced by the cracking of numerous whips. The poor creature is hurried and flurried about the little space outside the stables, or it is made to prance and caper along the public street. The intention is not to exhibit the natural pace, for no person possibly could judge of a horse when the animal is thus circumstanced. Fear will conceal the presence of disease, and the symptoms of alarm are, in the quadruped, readily mistaken for the evidences of spirit.

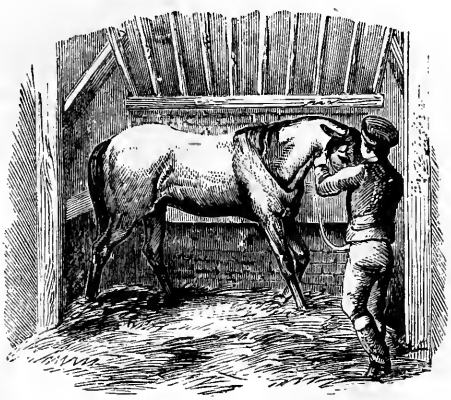
The novice should shun such society; and the gentleman deserves small pity who ventures into such a locality. Let the person who desires to possess a horse, and who can afford to pay for the luxury he covets, enter the premises of some respectable dealer. Let him be prepared to exchange a fair sum for a sound and serviceable animal. Let him never walk into the yard, and wait the appearance of the quadruped; but rather let the would-be purchaser remain near the stall, and observe attentively the groom while the man is putting on the bridle. Some creatures are alarmed when a hand approaches the head—an indication, either that the sight is imperfect, that severe punishment has been inflicted, or that the brain may be diseased. This symptom also warrants other suspicions; and it is never suggestive of health or of good treatment. The precautions taken by the man, when going toward the head, will also be characteristic, and may inform the spectator of very much concerning the educated temper and disposition of the nag he contemplates acquiring.

BACKING ON TO THE GANGWAY.

Such things, however, being noted, the stranger must still retain his situation. Some horses, though not absolutely "ricked," are nevertheless stiff in the back. Such quadrupeds are unpleasant to the rider, and are unable to turn in the stall; but whenever their removal becomes imperative, they are backed out on to the gangway, and then turned toward the door. A stiffened spine can be no recommendation, but it

may fairly be accepted as evidence that the animal has either been overweighted or has, in its time, done some hard work. It is invariably detrimental to the value; for, the vertebræ being the base of the anatomical body, their healthy condition is of the greatest possible importance toward even an approach to soundness.

It is highly improbable that an animal with a decided rick of the back should find admission into the stables of any respectable dealer; but there are numerous places, termed Commission Stables, which a novice unacquainted with names and localities may, from outward appearances, easily mistake for premises of the purest character. Should the imaginary personage, whose conduct the author has supposed to be the subject of remark, have entered such a stable, much art will be employed to persuade him to leave the building. If the gentleman should be firm, and refuse to retire, possibly the proprietor may be seized with a sudden fancy to show another horse; but any trick of this nature will be readily detected, and the fresh animal, though subsequently led into the yard, should never be looked at.



TURNING IN THE STALL.

A horse cannot turn in the stall without twisting the back. Some animals, however, can turn quickly in one direction, whereas an attempt to flex the body the contrary way will produce the acutest anguish. Therefore, when the groom bids the horse come round, the gentleman should observe the mode in which the act is accomplished. Should the quadruped's head be turned from the door, such a fact may be regarded as suspicious; for grooms always prefer the shortest roads, and trivial matters, where horses are concerned, often lead to important discoveries.

The diseases of the horse are not yet thoroughly understood. Mankind have acquired a habit of accepting words, without insisting that the

ideas such terms represent shall be strictly defined. No word is more common in the mouths of horsemen than "jibbing." It, however, does not specially imply one act; for there are many kinds of behavior which are designated as "jibbing." Thus, a horse which is unable to start, is called "a jibber." A quadruped which, in the middle of a journey, shall be suddenly impelled to move in a backward direction, is said to "jib." The animal which, upon hearing the command to proceed, will commence throwing up its head, and, spite of chastisement, shall bear in the opposite direction, is also supposed to have learned the "vice" of "jibbing."

"Jibbing" of every kind appears to be no "vice," but a nervous disorder,—a sort of equine epilepsy. A word, spoken sharply, can summon the attack, which generally deprives the animal of all power of motion, or forces it to move in a direction the opposite of the road on which it wishes to proceed. The movements are independent of the will; and if any person will attentively inspect the countenance of the horse, when in the act of "jibbing," the author imagines the real character of the supposed "vice" must be recognized. When "jibbing" is exhibited, a spasmodic fit has possession of the frame. It is useless to flog or to inflict other tortures. The attack will last a certain time, and then, perhaps, suddenly vanish. No brutality can shorten its duration, though cruelty, possibly, may lengthen the convulsion.

On such occasions, however, various cruelties are commonly perpetrated; but severity has then lost its power to quicken timidity. The lash has ceased to influence; while the human voice, though sent forth in volume and exerted in the bitterest execration, no longer is invested with the attributes of authority. The body is acted upon by a power higher than mortal sway. The creature is then carried by disease above this world's malice. The whip or the signal to proceed may elicit only a staggering motion, or a backward movement. At last the spell is broken. The ability to guide the limbs suddenly is regained: but the brain is congested and the senses confused. The creature, upon the first partial recovery, may exhibit a desire to bolt—may, for an uncertain period, be all but unconscious. Sometimes it will recover its powers suddenly, almost as though its previous condition had been assumed. On other occasions it may, under some impulse, tear onward, regardless of the road, as though it sought to fly the scene of its late suffering, or endeavor to lose the agony of convulsion in the rapidity of motion.

The probability that such an act may conclude the fit of jibbing, instructs us in the folly of adding the irritation of man's cruelty to the pain necessarily accompanying acute disease. Severity can only lend violence to the impulse which is almost certain to succeed the attack.

It may endanger the life of the driver, but it cannot shorten the duration of the fit. Every kind of brutality has been speculated in without effect. Such treatment, most probably, has prolonged insensibility; for noise, confusion, or agony is not likely to be sedative to the nervous system which a word has morbidly excited. Yet such practices are generally adopted. Nay, the author has heard of a professional man who, residing near London, possessed a fine animal which was thus afflicted.

A POPULAR CURE FOR THE IMAGINARY VICE OF "JIBBING."

This person actually had some straw kindled under his quadruped's body, and, to quicken what he called "an obstinate vice," partially roasted the breathing flesh of his living property! So monstrous an artifice was successful on the first occasion; but, upon repetition, it ceased to operate. Such a custom is not unusual among the uneducated boors of distant villages; but the writer had hoped that no vexation could have induced an individual, possessing the most distant claim upon the name of gentleman, to adopt so inhuman and useless a resort.

The horse is a gentle creature; it has no courage; it can display no resolution. Its impulses always incline it to flee from danger. It is made up of alarms, and a child's puny hand may guide its huge strength. But the history of the animal supplies too many instances where the perversity of mankind has mistaken the prompting of disease for the display of malice. It is disgraceful to the boasted civilization of the

present age that, while knowledge has much benefited every sphere of human legislation, the errors, the practices, and the brutalities of the last century should be in full operation,—where the scant necessities of the most gentle, the most submissive, and the most valuable of man's earthly helpmates are concerned.

Jibbing is most common among harness horses, the faces of which are disguised and partially concealed by the blinkers. Were the countenance exposed, its expression could hardly be misinterpreted by any person who cared to observe its indications. But nothing can obscure the comprehension of mankind like prejudice. This weapon has been frequently employed against the life of human beings; but animals, to this hour, are tortured by its operation. Could the countenance of a horse, when in the act of jibbing, be calmly contemplated, all belief in "voluntary vice" would be at once dispelled. The eye is strained inward; the teeth are firmly set; the nostrils are dilated; the breathing is spasmodic; and the muscles are rigid.

THE COUNTENANCE OF A HORSE DURING A FIT OF JIBBING.

There is, however, one symptom which, although expressive of terror, agony, or faintness, all horsemen are agreed in regarding as the declaration of a "vicious intention." Such an indication is the backward position of the ears, or the laying of those organs upon the animal's neck. The forward carriage, or the "pricking" of those members is recognized as expressive of delight, of gayety, or of attention. What, then, should the backward position truthfully signify? What ought sense to imply, from the falling of a part the upright bearing of which is interpreted to be the sign of liveliness? Yet, how many tender-hearted gentlemen, abused by the prejudices they inherited, will, when they observe the ears laid back, unhesitatingly cause the lash to sting the body which, probably, was far from contemplating mischief!

When an animal is thus afflicted, never pursue the course which is usually adopted. All noise should be prevented; no flurry near to or about the creature should be permitted. Do not use the whip or jag the reins: relinquish both. Order those within the vehicle immediately to dismount. Undo the bearing rein: loosen the harness. If possible,

remove the quadruped from the shafts. Go to the head; speak soothingly; pat and caress the agitated frame. Procure some cold water; soak a thick cloth in the liquid, and lay it over the brain and upon the eyes. Sponge out the mouth and nostril; then empty the vessel, by dashing the remaining fluid into the animal's face. When the incapacitating stage is subsiding, have ready two powerful men, who, placed at the head, shall prevent the disposition to bolt from being indulged. This done, return the horse to the stable. Never hazard riding behind a creature which has recently been afflicted with "equine epilepsy."

Such an animal is best put out of its misery at once, as the attempted remedy occupies too much time, is too expensive, and is far too uncertain in its result, to be prudently adopted. However, should the horse be young, it may be kept on prepared food for eighteen months—not turned out to grass; but stabled, properly exercised, and fed on the best, in the hope that nature will, with maturity, banish the disease. Such persons, however, as will drive a jibber, which merely exhibits a tardiness at starting, should be particular never to have the coat singed or clipped; for cold, acting upon the large surface of exposed integument, is very likely to provoke an attack. The horse, when brought to the door, should be briskly walked, and the journey, when commenced, should never start off at a tearing pace; but should begin most gently, and very gradually become more speedy. Such treatment, with carefully prepared food, plenty of old beans, bran mashes for laxatives, and an occasional tonic, is the best means the author knows of to render the quadruped ultimately useful.

The power of kindness is, perhaps, shown most strongly in the case of the horse thus affected. The love of the creature for the individual who is fond of it, is not well or truly characterized when spoken of as affection: it is something more than such a general term can represent: it amounts to positive devotion. Even when the fit is strongest, and all ordinary sounds are lost to the animal's sense, the voice of the person who has been constantly kind will evidently be responded to. His caresses will soothe at a moment when the most potent pangs would be powerless: his presence will restrain the wildness which naturally ensues upon the first dawn of reviving consciousness. Whereas he who is habitually a careless or a harsh master, in whose hand whip and reins are equally instruments of torture, may, only by his appearance, induce the attack; and his foot upon the vehicle is likely to generate the agitation which shall assuredly bring on the disease.

But the man who would win the love of his steed, and is fond of the animal, should be a frequent visitor to its abode. That simple or negative quality which consists in the absence of actual cruelty, will answer

no end. The human being, thus distinguished, only elicits the passive indifference by which his treatment is characterized. It is feeling, which even in animals, responds to feeling. The horse and the dog love those who like to take pains with them, or submit to trouble for their sakes. The two animals are alike in this respect. How fond the dog, which may for years have slept before the fire and grown enormously fat upon the plentiful meals supplied by an indulgent but an indifferent master,—how attached the animal speedily becomes to any person who, though a stranger, will devote some time to the teaching of little canine tricks! So also with the horse; the best way, indeed the only way, to win the entire love of this creature, is to expend some labor in brightening its intelligence.

To return to the matter at present especially under consideration. The jibbing which is confined to a delay at starting may be annoying, but it is seldom dangerous. The animal which merely moves backward, when commanded to proceed, may vex the driver, but the malady, being known, its consequences can, in a great measure, be guarded against. There is, however, one form of this disease which renders any animal very far from a safe possession. It is, where the horse will suddenly stand still in the middle of a journey, and commence backing. The more inopportune the place for such an exhibition, the more likely is the visitation to be brought on. A crowded thoroughfare or a dangerous road,—any incident calculated to excite or to alarm the steed, will assuredly produce a display of the worst symptoms.

A medical gentleman, of whose acquaintance the author is justifiably proud,—and whose practice laid upon the western coast,—one evening, after a hard day's work, which had tired all his horses and fairly knocked up their master, was, before his boots were pulled off, apprised that a wealthy lady, and resident eighteen miles distant from his pharmacy, required his immediate attendance. There was no choice but to obey such a summons. The gentleman's own horses he could not think of compelling over such a distance. Therefore the place was scoured, and at last an individual was discovered who was willing to lend, for a consideration, "the very best horse in the whole country." The doctor was soon mounted, and progressing to his destination, at the rate of twelve miles an hour. The distance had nearly been accomplished, when the road ran close to the sea. It was in fact no more than a broad ledge cut in the side of a precipitous cliff. This spot being reached, and the heart of the rider made glad at the prospect of soon accomplishing his journey, the steed suddenly came to a stand. It first trembled all over. The gentleman endeavored to soothe the creature, which he perceived was suffering, but which he concluded was alarmed. He was thus en-

gaged, when the nag commenced to back toward the sea. Whip and spur were tried to no purpose. The impulse could not be checked or altered; and the writer's friend, perceiving his danger, had barely time to throw himself out of the saddle, when the horse toppled over the cliff, and was discovered a mangled mass on the following morning.

JIBBING.

The various aspects which disease can assume, of course are multiform, and unfortunately these, when exhibited by the horse, are all exposed to the arbitrary conclusions of prejudice. Men of education appear, in all that concerns the stable, to passively resign their intellects into the hands of the groom, and to be swayed by the hardihood of assertion, or to be ruled by the conjectures of selfishness. Thus the declarations of morbid sensibility are accepted and spoken of as the antics of the "rankest vice." "Jibbing" has been punished as the instigation of malice; the chastisement has been inflicted without mercy, and has continued for many ages; but cruelty has not been able to check the exhibi-

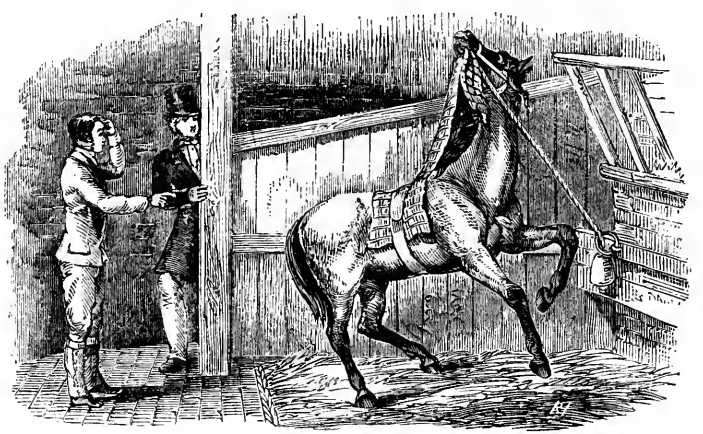
tion of disease. The symptom is to this hour as general as it was in previous centuries. It still delays the vehicle, after the driver is ready to start: it often propels the wheels in a contrary direction to that the coachmen desire they should travel: it commonly stays the wayfarer, when eager to conclude his journey. At the door of the mansion, in the public street and on the high road, the signs of the malady are frequently to be witnessed.

So it is with the indications of various disorders. The horses of the existing race of proprietors are, for a life, doomed to subsist on the same substances: four or five times a day, dried grass, oats, and a few beans are placed before them: some have chopped straw, and, in exceptional cases, prepared food; but that being only allowed for the last meal on Saturday night, does not interfere with the monotony of diet. Now, a sameness in the articles consumed, as medical men now recognize, disorders the digestion; but when aided by a want of exercise, a total absence of amusement, and an impure residence, perhaps no better means could be invented to derange the tenderest radicles of being. The sympathy which exists between the stomach and the skin is now so universally understood that it will generate no surprise if the creature, thus housed, imprisoned, and sustained, should be occasionally troubled with an obstinate cutaneous affection.

Stabled horses often are the victims of an acutely sensitive condition of the integument. Yet the possible existence of such a state is never admitted by the groom, because the affection is unaccompanied by any outward sign. There is no tenderness displayed when the hand is laid upon the body. The coat looks bloomingly. The scurf is not developed in increased quantity. The hair does not prove loose or fall off. There is nothing visible for ignorance to perceive. The animal feeds well, and seems in the highest possible condition. The groom cannot, therefore, believe in the presence of disease. Nevertheless, the quadruped may acutely suffer, especially during the spring and autumn. It may even, by the irritation, be provoked to gnaw large patches from the sensitive covering of the body; but the more common form of the disease urges the poor horse to destroy the heavy rug in which stable attendants are fond of wrapping their charges, before quitting them for the night.

What precise form the irritation assumes, it is impossible to ascertain; but no sooner is the quadruped clothed up, than it begins to fidget. Its legs are in almost perpetual motion, and the body repeatedly leans with violence against the trevise. The creature is evidently uneasy, and the animal's eye watches the groom until that individual, having finished his work, retires to the consolation of the adjacent public house.

No sooner is the animal certain of being alone, than it commences to tear off the hateful clothing. Large portions are seized between the teeth, and these are rent off with an energy which borders upon madness. Nor is the mental fever, which actuates the horse, to be pacified, so long as a vestige of the hated envelope remains to be removed. The passion seems to be very engrossing while it exists; for, during the period, anybody may enter the building, and even approach the irritated quadruped, without his presence being observed. But, the feat being ended, the creature looks around, seems to recover its recognitions, nibbles different portions of its coat, licks the coolest parts of its manger, being evidently thirsty, and ultimately lies down, apparently well satisfied with its recent performance.



TEARING THE CLOTHING.

The recognized remedy for such a condition does not regard the morbid state out of which the destruction arises; but it consists in placing upon the back of the horse a garment which shall pain the lips, tongue, palate and gums when it is grasped by the teeth. Cloths of such a description are manufactured of coarse horse-hair, and are commonly kept by most harness-makers, so general is their adoption. After such a fashion, the biting impulse may be sometimes checked; but there are quadrupeds which seem to be goaded to still greater violence by the device. Other animals, though the cloth of hair acts as a preventive, become restless, and evidently pine under the remedy: their appetite fails: their spirit vanishes, and their flesh wastes: nay, the author has known the introduction of the favorite cure to be followed by an internal and a fatal form of disease.

Why should all inhabitants of the stable be subjected to a sameness of treatment? Why should all horses be expected to consume the same food; to eat the like quantities of provender; to drink a particular amount of water, and to be clothed in uniform, when left for the night? It may please the eye of the groom to behold the animals all wrapped up and bedded down to match, as he quits the stable for the night; yet, where life is concerned, something stronger should regulate arrangements than the gratification of a servant's prejudice.

To propitiate the inclinations or the whims of a retainer, constituted no part of the motive which caused the stables to be erected. Such places are professedly built *for* horses, and the animals, therefore, should be primarily regarded. Yet, wherefore oblige a quadruped to be covered up with a rug, when the creature, by a nightly destruction of the wrapper, asserts the envelope to be objectionable? Why compel an unwilling steed to endure that which is not requisite on the score of decency; which cannot be adopted on any plea of appearance; and which, in the most emphatic manner, is declared not pleasant to the life on whose body it is suspended?

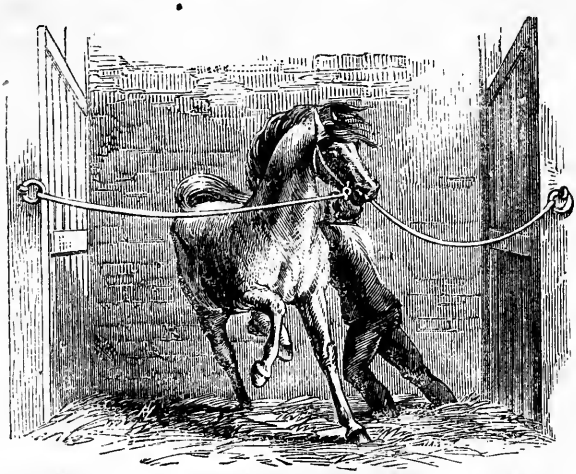
It is impossible to comprehend that the groom possesses any excess of modesty which can be offended at the notion of a horse sleeping naked in the stall; and if the absence of covering is agreeable to the party which is principally concerned, it seems odd a reasonable being should insist that a contrary practice shall be adopted. Still, persist these individuals certainly do; and even carry their persistence to other particulars. The skins of the equine race are as various in degrees of sensibility as can be those of human beings. There do exist many men who, for pleasure, first soak their bodies in warm baths, and subsequently polish the cuticle with the hardest possible of flesh brushes. Others would only be gratified were they daily rubbed down with brick bats. On the contrary, there exist individuals on whom a ruck in the finest linen will inflict a discomfort which, in its intensity, almost amounts to an agony.

AN EXCITED HORSE'S MOUTH.

So there are horse possessing hides to which may be applied with impunity the sharpest and coarsest of curry-combs. But there also live many animals having skins to which the oldest and bluntest of those antiquated scratchers will occasion a sensation the acuteness of which is testified to by the violence of resistance with which the morning's dressing shall be accompanied. Yet, rather than obey the hint so energetically conveyed, or discard the employment of

anything with which use has familiarized them, the least venturesome of grooms will brave daily danger. In vain does the irritated quadruped writhe, frisk, stamp, kick, snap and bite, under the infliction; the servant has been taught that a curry-comb is an instrument to be applied to the skins of horses. The head will be tied up—the leg-strap employed; nay, the hobbles and the twitch will be applied, before the lesson he has learned to regard in his youth shall be discarded. Such tools of the lowest routine are the ignorant in everything which does not involve their personal gratifications.

The consequence is, that because the animal, while being dressed, cannot forbear biting at all objects which are near to it, the incisor teeth rapidly lose the cutting edges, and become rounded. Such a shape of the nippers used to be viewed as indicative of *crib biting;* but the fallacy of this notion having been exposed, the idea is generally abandoned. Nevertheless, an animal having rounded front teeth would fare badly at an equine banquet where the provender had to *be cropped* from the earth. It is, therefore, only prudent to prevent the creature from spoiling its mouth. To accomplish this, remove the curry-comb; for, should it be allowed to remain in the stable, the chances are very strongly against the groom's favorite tool being discarded. Have the skin dressed



A HORSE, HAVING A SENSITIVE SKIN, IS DRESSED BETWEEN THE PILLAR-REINS.

with a penetrating brush; or, should that prove too sharp, order it to be groomed very gently with the wisp and water brush. Animals possessed of extremely sensitive skins generally carry very fine coats; therefore they can well afford to dispense with very much labor from their stable attendant.

The snapping may, from long indulgence, have become confirmed as a habit. In that case, nevertheless, ameliorate the dressing; but, before the groom undertakes the cleansing of the skin, the quadrupeds should be fixed by two strong pillar-reins, each of which is of sufficient length to reach, from opposite sides, to the middle of the dressing stall. The head, thus bridled, is comparatively fixed, and is, of course, fastened away from any substance which might be seized by the teeth. However, the skin is sometimes, when thus tender, loaded with a scurf which no curry-comb, however long it may be applied, will do aught but increase. In this case, always change the provender, and particularly see the food is properly prepared ere it is presented. Give, daily, one ounce of liquor arsenicalis, in a pint of cold water; and every morning damp the skin, *not the hair*, with a mixture composed of animal glycerin, one part; rose-water, two parts.

For an animal that destroyed its rugs, the first measure is, to refuse all further supply of such articles. Then attend to the food, after the method already advised; next anoint the body with glycerin and rose-water, subsequently employing a hay wisp regularly night and morning. Place the animal in a cool, loose box, and, if possible, leave both window and half the door open. When night arrives, permit the quadruped, at its pleasure, to move in or out of the stable—allowing a piece of rather closely bitten meadow land for exercise, when the sun is down and the flies are at rest. Take the animal in before insects begin to throng, which they seldom do till the sun has gained full power. By way of medicine, daily give one ounce of liquor arsenicalis, in a pint of cold water, together with one quart of good (not publican's) beer. Keep the bowels regular with bran mashes or with green meat. There can be no necessity why all labor should be relinquished: the work, however, ought not to be excessive, or the pace too exhausting; for any extraordinary exertion is apt to lead to excoriations which are, in their turn, disposed to end in large and obstinate sores, when the skin is in an irritable condition.

Every part of the horse is of importance to the owner: the teeth are not secondary to the feet; the legs are of no less value than the lungs; and the skin cannot be esteemed more lightly than the eyes. Indeed, every rider ought to make himself acquainted with the appearances natural to the healthy eye of the horse; for a shying steed will effectually destroy the pleasure of an entire day. The horseman should notice the eyes of every animal he intends to mount. As a precaution, such a measure is imperative; for, being forewarned, he may be prepared to encounter the danger into which defective vision is almost certain to lead the rider. For the method of proceeding, when examining the

eyes of a horse, the reader is referred to the "Illustrated Horse Doctor," (pp. 49 and 56,) wherein the proper plan is amply detailed.

The reason for recommending what the reader may regard as a troublesome acquisition and a strange knowledge for a gentleman to bore over, is, because those livery stable-keepers who let horses out to strangers, can hardly be expected to maintain a very valuable stud for such purposes. It is not asserted that these tradesmen knowingly send out very defective animals; but they could not, perhaps, in the way of business, warrant, as decidedly sound, any inhabitant of their stables. The eyes are the parts which generally fail. Exposed to a tainted atmosphere and fixed close to a whitened wall, when at home; wearing blinkers unpleasantly near to the organs, when abroad; while, at other times, they carry a saddle, having the eye exposed to the full glare of the sun,—it is not a subject for wonder that bodies so sensitively endowed and delicately organized should become diseased.

Added to the natural results of such causes is the treatment experienced from brutal and ignorant fellows, whom a few shillings have invested with a whip. Such persons are fond of slashing the horse over the head, and may thus produce partial opacity of the cornea. (See "Illustrated Horse Doctor," p. 46.) The effect of imperfect vision is to create alarm in a highly imaginative but an excessively timid animal. Shying is the consequence, and this act is as various in its developments as its causes may be numerous. Probably this will be best explained by relating a circumstance which, a few years ago, occurred to a friend of the author's.

A young gentleman, native of Ireland, complained one street was so like another, that though he should live a thousand years in London, he should still see nothing of the town. He wished to view the suburbs to ascertain the situation of the metropolis; with this purpose in view, he, one afternoon, hired a horse at a West End livery stables, and trotted upon the Uxbridge Road. Everything went pleasantly till steed and rider had reached Ealing Common, when, there being nothing in view, the gentleman gave the quadruped its head, and allowed it to proceed at its own pace. The pair, however, had only gone a short distance, when, from some motive not recognizable to human perception, the creature was seized with a violent fit of "swerving;" or, in other words, it suddenly left the road, and, moving sideways, began describing a rather wide semicircle upon the common, which was, at the place, fortunately smooth and level.

But Ealing Common appears to be a favorite spot with laundresses, who there hang out their wet linen. The rider was dragged under one of the lines, loaded with damp clothes, while his horse pushed against

an elderly washerwoman, and, spite of her screams and resistance, propelled her a considerable space. The gentleman, almost thrown by the unexpected motion of his nag, and half smothered by the wet garments, which clung about his head, was wholly at a loss to comprehend the cause of the female screams, rendered yet more discordant by the shrill cries of her terrified grandson.

SWERVING.

When, however, he understood everything, a donation calmed the agitation of the female, while, hastening to a roadside inn, he found a man who was willing to take the horse back to the livery stables. The rider returned by another conveyance, and he has never since trusted himself outside an unknown animal.

Swerving, however, is no more than a mild form of shying, when compared with the numerous evils which result from defects of the visual organs. Every possible variety of eccentric gait is not to be imagined, much less is it to be described. One consequence of this peculiarity, perhaps the worst shape it can assume, is bolting or running away.

When a horse is thus impelled, it is, as was insisted upon in the "Illustrated Horse Doctor," useless to tug at the reins or to slash with the whip. Such acts may aggravate the peril, but they cannot check the movement, which originates in a dread that lifts its victim above all earthly restraints. The brain is then excited and confused; the pain, which the body shall fail to recognize, nevertheless may prove an additional stimulant to the wildness that approaches near to positive despair.

The quadruped is not to blame. It has been guilty of no fault. Its behavior may displease its present master; but the horse has no ability to struggle with a fear which was generated by disease. The alarm was the offspring of a cause beyond the aid of medicine and removed from the help of surgery. Such an animal, however, should not be left entirely to its fate; for "running away" is apt to become more frequent upon repetition. The eyes, thus afflicted, should be covered when the quadruped is taken abroad; for it is safer to sit behind a creature which is sightless, than one which is possessed only of a dangerous or of an imperfect vision.

Then, to explain the motives for that forbearance and to render clear the prudence of that gentleness which the reader has been recommended to practice. Let it be inquired, can pain be esteemed a corrective of terror? It was an apprehension of suffering which created the alarm. To render such a dread a reality, does not appear to be the readiest method of dispelling the feeling which has been generated by the imaginary possibility of agony being encountered. The quickest plan by which any particular sensation can be destroyed, certainly is to excite another emotion that is the opposite of the one we are desirous should be dispelled. Then awaken an assurance of security, and, of course, alarm is annihilated. It may not be a popular or an heroic line of treatment which the author has presumed to propose; but, assuredly, the safest way to destroy a fear is to kindle an emotion which shall be antagonistic to that it is desirable to remove.

Such conduct, however, would be directly opposite to what is at present generally exemplified by the majority of mankind. A horse bolts, or it runs away, and the act is hastily concluded to originate in a "vicious propensity" which the animal delights in indulging. The creature is spoken of as a "bolter." The topmost speed and the blindest flight is, by equestrians, regarded as the gratification of a malicious spirit, and, thus considered, only elicits a firm resolution to subdue its exhibition at every hazard. The reins are sawn and the whip is plied, until agony has driven terror to madness, and some awful disaster puts a termination to the unsightly proceeding.

The following is intended to be an accurate representation of an incident which the author witnessed, some years ago, in the neighborhood of Holloway. In the issue, however, no person was injured; even the horse escaped unharmed. It would have been difficult to say which of the principal actors was the most frightened. Probably the alarm of each was as great as it was possible to be; but the breakage of the shafts, the rupture of the traces, and the snapping of the reins mainly secured the immunity of all. No one, having seen the aspect borne by the event at one time, could have foretold how it was to terminate; assuredly the fortunate result was not facilitated by the gentleness or the self-possession of the driver. That person did his best, no doubt without the intention of whipping up a catastrophe: he acted according to the recognized rules; but it was owing to the reflection such a scene gave rise to that the author was led to recognize the folly of that behavior which is generally displayed under the like alarming circumstances.

RUNNING AWAY.

Before concluding the present chapter, the reader is earnestly counseled to discard the many foolish tales he may have heard about the horse being naturally a "vicious animal." What reward is reaped from the indulgence of the creature's imaginary designs? Death, injury, or disfigurement! Such consequences might ensue upon the promptings of insanity; but no one, however, has supposed that madness instigated the conduct which man recognizes as "vice" in the horse. There is, in the world's opinions, a wide distinction separating the mad horse from the "vicious brute." The attributed "vice" is certainly not recognized

as madness, although it may be accompanied by the temporary absence of consciousness. The vicious acts display too great a similarity throughout the entire equine race, distributed over the world, to be reconciled with the presence of recognition; while they are too regular in their development and far too heedless in their execution to accord with the promptings of any wicked disposition which would be dependent upon individual inclination.

Then, the sameness which pervades the entire group of supposed "equine vices," cannot be reasonably accounted for in accordance with the popular belief. In the human being, each example of a vicious disposition is conspicuous for adopting an independent and an eccentric course of action, though it occasionally practices imitation. Can animals instruct or mimic one another? Have horses, only, the power to communicate "vice" to their companions? Can they, only, teach self-mutilation, and learn suicide? That is not to be credited. But will the reader, viewing them as inferior beings, consider the conduct of all as regulated by the impulses of instinct, generated by sudden emotion? Then, sameness is by no means extraordinary. Eating is in man an instinctive act. The modes of preparing food are various, and the methods of its division are as dissimilar in different nations,—for these actions are shaped by conviction or by reason; but the manner in which the instinctive portion of the act is performed, the way in which the sustenance is masticated and is swallowed, though in some degree influenced by refinement, is mainly similar in all regions, and in every race of human beings.

To run away from danger is an instinct in a horse. The animal does not fly from battle, only because man has deceived it into a faith that there is no danger where gunpowder is consumed. Terror renders the animal blind and unconscious. It has no more power to check the last effect than it has ability to contend against the first consequence. Pain induces a natural desire to escape from the cause of suffering. Its wish may be gratified at the sacrifice of property; but property is an artificial institution, of which most animals have hitherto refused recognition. Sameness of cause generally induces like results. Idleness leads to mischief; satiety promotes waste; terror generates alarm; and itching provokes scratching. These acts in the animal may be imprudently indulged; but the horse, having no conception of a future, of course cannot nicely calculate probabilities. Thus, if we run through the list of the so-called "vices," each will admit of a very easy and of a remarkably ready solution.

Let no man, therefore, speak of a "vicious horse." Let no reasonable being so far forget himself as to attribute design as a motive to the

creature which nature has endowed only with instinct. Needless torture, though inflicted on a brute, rebounds to strike humanity. But mankind have not yet so emerged from barbarism as to have entirely lost all relish for those prejudices which justify cruelty. The written history of the world is the sad record of a long struggle midst blood and suffering. Only of late years have men dared to relax the laws, and only recently have they sought to lessen crime, by educating the debased to perceive the beauty of goodness. Might not a similar spirit, applied to horses, diminish the number and lessen the fatality of equestrian accidents? At all events, such a suggestion deserves a trial. It should be experimented with, if not for its novelty, because it proposes the adoption of behavior which must gratify the better feelings of the master, and because it holds forth a reasonable prospect of decreasing some of the more serious evils by which human life is, at the present moment, too frequently endangered.

Before joining in the cry against equine vice, always investigate the act which is adduced to justify the prejudice. Do this quietly. Look fairly at the surrounding circumstances, and think how these might possibly act upon a timid and a non-reasoning creature. Find out the cause, if possible; because, by so doing, you will best serve your own interest. Knowing the cause, it is probable you may eradicate the effect. But, before this is undertaken, the party must be prepared to exercise his utmost patience; for animals are slow to learn, and have to conquer their terrors before they can exemplify the easiest of lessons. Only, once taught, they are retentive scholars; and, by the pride they evince in their acquirements, reward their instructor.

To stimulate the proprietor unto that course of conduct which is recommended above, it surely must be sufficient to remind him that the opposite method has been long as it has been most perseveringly tried. Severity, however, although enthusiastically exemplified, notoriously has only imperiled man, without in any way amending the habits of the animal. Therefore the reader is asked, if it is reasonable to continue the proceeding which, having been largely tested, has induced nothing but misfortune?

CHAPTER IX.

STABLES AS THEY SHOULD BE.

When considering this subject, the writer is freed from all restraints. He has to describe things which exist only in his own imagination; not to depict any object which has been embodied as a reality, or which has been fancied by another individual. The author, however, will endeavor to picture such an edifice as in some of its modifications any one, keeping a horse, should possess ability to erect.

To some persons the following description may appear so grand as to border on the ridiculous. Compared with existing buildings, the author's proposal, no doubt, must seem to be of unnecessary dimensions. But a question of this nature is decided, not by what it seems but by that which it actually is. Is any provision hereafter made, that health does not demand? If the place is large, so are the animals which are to be harbored within its walls. What is unnecessary, or where is the article which is useless? As to the accommodation being too ample, what would a Saxon king of Britain say, could he be resuscitated and made to behold the palaces which her present Majesty possesses? Nay, what would a workman who had existed during the reign of "glorious old Harry" exclaim, could he contemplate the accommodations which surround his descendants of the modern time?

Stables, as they now exist, are tainted with all the evils of antiquity. Improvement has changed the homes of the people, and has even amended the prison of the caged songster; but it has entirely skipped over the jail of the horse. The place and the people about it smack of a time when corruption was the rule and filthiness was a fashion. The question therefore to be considered is, not what stables are, but what they should be. What the animal requires to maintain it in its beauty, in its health, and in its usefulness, is that which we now wish to ascertain. All the world has witnessed how much the quadruped can endure, when the master cares not for its comfort, is careless about its health, and does not study the requirements of its nature.

Bricks and mortar, however expensive such articles may be, are about

the most economical purchases which the horse owner can invest his cash in. It is folly to pay large sums for thew and muscle, when the place in which such properties are to be lodged will destroy the health and undermine the strength that are imperative to their preservation. One or two deaths in a prime stud may cost more dearly than would the largest of the proposed buildings.

The money which shall be expended upon the improved stable must not be viewed as cash sunk in an unremunerative object, but as a sum invested in that which will immediately yield an exorbitant interest. It will decrease the veterinary surgeon's bill; it will conserve the health and prolong the usefulness of the horse; it will put the animal in better heart, and will enable the proprietor to dispense with those repeated purchases which now occasion the horse owner to stare at every fresh steed he chances to meet, and to inquire "if it be for sale?"

When we wish to raise any erection, we should, before we begin to plan, thoroughly comprehend the purposes which the new edifice is to serve. A stable is not the home of a horse, in the same sense that a house is the home of a human being. The animal has not one room for day and another for night. It cannot retire; it must remain in its compartment; and it becomes the author's duty to point out what is imperative to render the limited space a healthful abode.

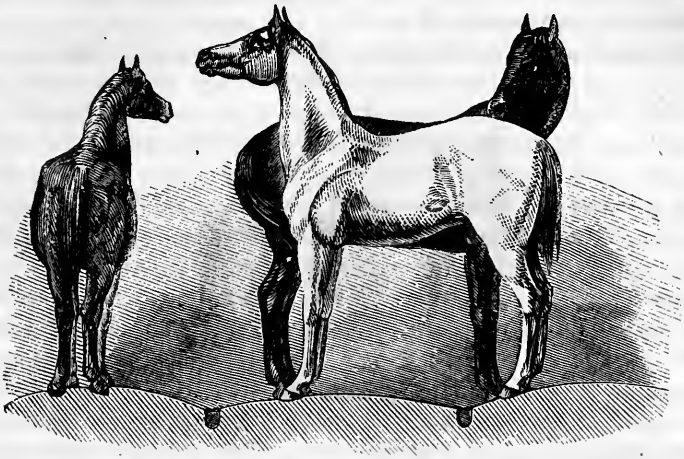
In the first place, everything like a stall must be abolished—the uses of such abominations being supplied by loose boxes. Each box is to be eighteen feet square; of these there are to be six, ranged in pairs; three upon either side of the interior. Every box shall be rendered dry and sweet by six deep gutters, three on either side; and all emptying into a central branch drain, which discharges its contents into a main drain, running through the length of the entire building.

The gutters commence eighteen inches from the side divisions of the boxes; the first is situated three feet from the external wall. Six feet divides the first from the second gutter; the same space separates the second from the third gutter, which is removed only three feet from the central partition.

The flooring or pavement between the gutters is arranged in gentle undulations, like the walks in a gentleman's garden. It is raised three inches higher in the center of each division than where its borders terminate in the gutter. The two pieces of pavement at either end of the box begin at the elevation of three inches, and sink to the level of the lowest surface as they approach the gutter. Thus every portion of the pavement will incline one in twelve, a fall of fully sufficient magnitude to allow of the speedy disappearance of fluid, which is always ejected with force and in quantity. The gutters all terminate in "stink traps,"

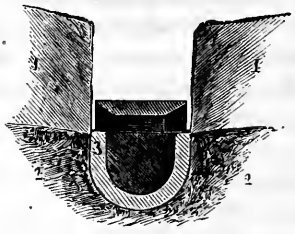
which give admission into the branch drains; these last, as well as the main drain, consisting of circular earthen pipes.

The undulations of the pavement not only facilitate the speedy removal of fluid, and thus tend to keep in a state of purity the atmosphere



MODES OF STANDING AFFORDED BY AN UNDULATED PAVEMENT.

within the building, but the surface presents every variety of standing ground to the choice of the quadruped. The animal, by this arrangement, can select an upward slope, a downward incline, or a level plane, whereon to rest the feet; an ability of appropriation which intelligence will not be slow to comprehend or tardy to appreciate.



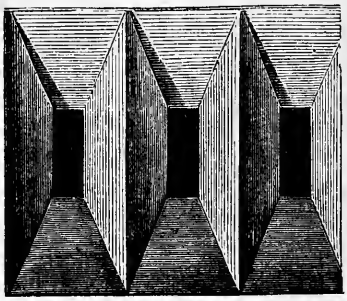
DIAGRAMATIC SECTION OF A SUPERFICIAL GUTTER, SEVERAL OF WHICH KEEP DRY THE LOOSE BOXES.

1 1. The Dutch clinkers.
2 2. The prepared ground on which the gutters and the pavement repose.
3. The semicircular earthenware gutter along which the fluid flows, covered by the loose iron grating.

Each gutter should be two inches wide and two inches deep. They ought to commence at the depth of a Dutch clinker from the surface, and be covered by a perforated loose iron grating, the holes in which are

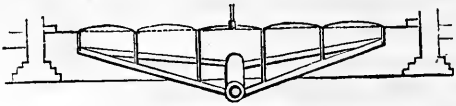
a quarter of an inch wide, one inch long, and the last distance asunder. Thus should the horse, when down, lie over one of these gutters, the body cannot then repose on a good conductor of heat.

The gratings are not flat, but incline on every side toward the openings. This pattern was selected, because the author has beheld flat bars eaten into by the acridity of the fluid, and retaining liquid that yielded an abominable stench. Neither are these coverings fixed into their situ-



PATTERN OF THE LOOSE IRON GRATING WHICH COVERS THE GUTTERS.

ations. They are merely laid upon the sides of the earthen gutters, which are three inches wide at the openings; the iron can afford to dispense with other fastening than its own weight supplies. Should the channel which the grating guards ever become clogged, then the easy lift of the metal-work will allow the gutter to be cleansed.



CROSS SECTION OF THE DRAINS IN LOOSE BOXES.

Supposed to be seen on the line D E, in the plan of drains to be shortly introduced.

LONGITUDINAL SECTION OF THE DRAINS IN LOOSE BOXES.

Supposed to be viewed on the line E F, which is marked on the plan of drains.

The openings, which are ample to permit the escape of all liquid, are purposely made small, because rats and other vermin too frequently enter stables by the drains. It is by no means unusual for such pests, where they are numerous, to attack and gnaw the hoofs of living animals. The horn is without sensation; therefore it can be gradually

removed without the horse being at all inconvenienced; but, assuredly, the proprietor will be vexed at a destruction which necessitates the quadruped should be idle until nature has repaired the loss of substance.

The branch drains, which commence at twenty inches from the surface, can be only entered through a stink trap; that article also opposes an obstacle to the free passage of vermin. All these branches terminate in the main drain, which, where the tube begins, is situated thirty-four inches within the soil, and, as it proceeds, has a fall of about one foot in fifteen feet.

Neither the pipes, the gutter, nor the clinkers are placed within or rest upon unprepared soil. Such may be the usual plan after which most stables are now built; for the drainage of these places does not generally extend beneath the surface. The pavement of the contemplated stable, however, is to be raised two feet above the level of the ground on which it is erected. For the entire space which the structure will occupy, the soil is, in the first instance, to be removed to the depth of one foot. After the foundations have been properly laid, the walls are then to be raised till they are built up two feet above the natural level of the surrounding surface.

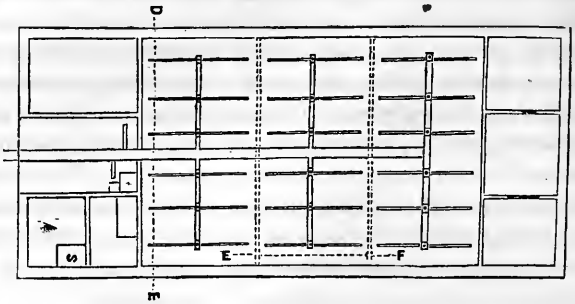
A layer of large flints or of coarse brick rubbish is then to be thrown in; this layer is to be two feet six inches in thickness. Within this, the main and the branch drains are to be arranged, though the principal drain will also have, toward its termination, to be sunk into the earth. The remaining six inches is to be filled in with coarse sand; upon this the gutters are to commence.

DIAGRAM, EXPLANATORY OF THE MANNER IN WHICH THE GROUND OF THE STABLE IS FORMED.

The gutters are two inches deep. They all originate at five inches from the upper surface of the clinkers. The shallowest has a fall of fifteen inches, but others have a much greater inclination, as all empty into the branch drains which communicate with the main drain. This last, sinking deeper as it proceeds, quits the building at a depth of six feet six inches from the exterior of the sand within the walls of the stable.

The contemplated structure will be thus thrice drained. First, there will be the deep tubular main and branch drains; next, there is the sand and brick rubbish; while, lastly, there is the surface drainage effected by the grated gutters. So much pains have been consciously bestowed upon the dryness of the building, because nothing will, in the end, prove more detrimental to the horse than confinement in a damp abode. Not only does perfect drainage conserve the health of the equine inhabitants,

but it likewise tends to preserve the bricks, the mortar, and the expensive fittings that should adorn every stable.



PLAN OF DRAINS.

S indicates the position of a trap door, which leads to the coal-cellar under the gig-house.
The dotted line, connecting the two letters D E, represents the situation of the supposed section of drains, previously introduced.
The dotted line, indicated by the letters E F, points to the supposed situation of the cross section of drains, which has likewise been exhibited.

According to the supposed view, which forms the frontispiece to the present volume, there is a free but covered space, twelve feet wide, extending all round the building. The soil of this free space, covered ride or ambulatory, should also have been removed, and subsequently have been filled up, after the plan already described, as necessary for the interior of the stables. It need not, however, be paved with clinkers, as sand forms a better ground for a horse to exercise upon than can possibly be made with the hardest of known bricks.

The roof, having sheltered the ride, terminates immediately over a metal gutter. This gutter communicates with five pipes upon the western and upon the eastern sides, with two pipes upon the southern, and with three upon the northern aspects of the building.

The roofing of the ambulatory is upheld by thirty-one posts, each twelve feet high, and the same distance apart. Between every two of these posts, on all sides of the stable save the front, are placed smaller uprights, which reach only to six feet. By these smaller posts are supported one end of three movable bales on either side, the opposite extremities of the bales resting against the larger posts; each bale being six feet long, and reaching from the small uprights to the main supports. The first bale is one foot from the ground; while the others are at equal distances, and so placed as to leave four inches of clear pole to project above the highest rail.

The pipes leading from the metallic gutter are fastened to the pillars and empty into a drain, which encircles the building and receives the water from the roof; it also conveys away that which is used in washing

the carriages, or for general purposes. This is carried to any convenient pond, while the liquid manure of the stable is, by the tubular pipes, conveyed into a tank situated at least twenty yards from the principal building.

Drainage of the entire roof is thus assured, and the dryness of the ambulatory in all weathers is rendered a certainty. No large stable can approximate to its requirements, in which a covered ride is not provided. It is, however, by no means uncommon to behold grooms trotting the animals on which they are seated, and which the servant is supposed to be taking out for the morning exercise; but if a horse is to be mounted and put to its paces by the man as well as by the master, it necessarily follows that the quadruped must perform double duty, or endure excessive wear.

Many grooms habitually do more than merely ride. These men are, generally, excited when in the saddle, and removed from all chance of supervision. Some of these individuals delight in antics. Most stable attendants love to display the spirit of the quadrupeds they wait upon; and all of lively dispositions, when their companions in service are looking on, naturally strive to convert duty into a pleasure. The horse is his own for the time, the animal being then entirely subject to the servant's authority, and he being far away from all that might control his actions.

An anecdote will, perhaps, best illustrate the above observations. A medical gentleman, established in the north of England, possessed a handsome bay gelding, for which he had recently given a heavy price. Soon after the groom professed to have brought the quadruped into working condition, the doctor began to use the animal for his afternoon exercise. He was fond of a particular road; but he could not persuade his horse to pass a certain low, roadside tavern. At the door of this place the quadruped would always stand still. Punishment was of no further use than to make the animal, much to its master's disgust, leave the door and bolt into the yard.

There was nothing, then, to be done but to turn the creature's head homeward. No sooner did the quadruped's face point in this direction, than the steed began to exhibit a speed which seemed to say the doctor was riding on affair of life or death. The gelding, in consequence of the disgust which its strange proceedings had awakened, was shortly afterward sold at "an awful sacrifice;" nor does the medical gentleman, to this hour, comprehend the reason of his dumb servant's eccentric behavior.

The public house was famous as the resort of grooms. Here, "early purl" was prepared in perfection; while, at later hours, nothing could excel either the "neat liquors" or the "dog's nose" which the tavern

provided. The horse was accustomed to stand before the door; or, during those days when the doctor might walk abroad, the animal was concealed within the yard. Intelligence had learned its lesson, and its owner, being a timid rider, wanted the resolution necessary to force his slave to receive and to obey a new instruction.

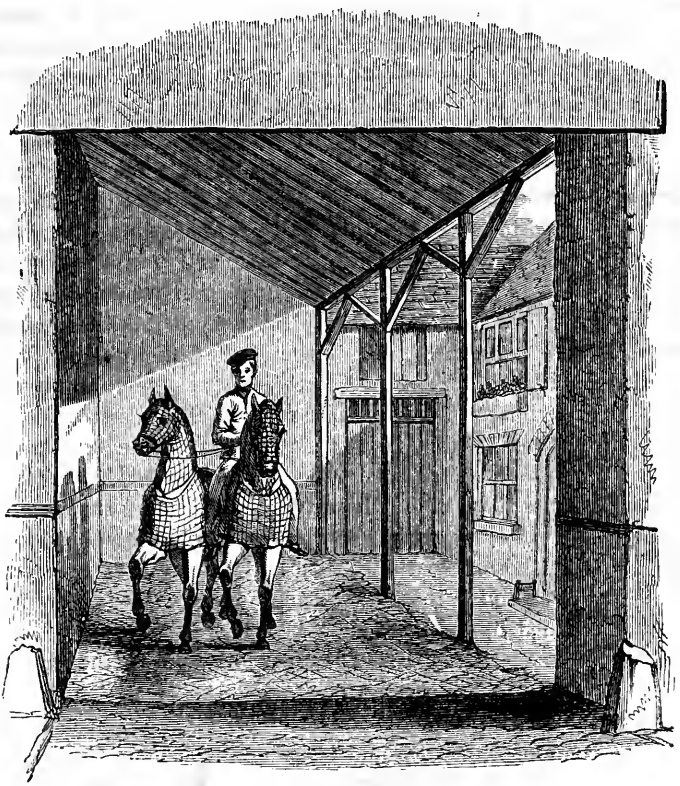
The foregoing anecdote should also enforce the wisdom of masters making some further acquaintance with their living property than simply to know it for its uses. There are, however, a numerous class to whom anecdotes are not illustrations, but nothing more than amusing stories, easily invented and readily embellished. With these people, nevertheless, seeing is believing. The writer, accordingly, with all humility, invites his readers to peep down some of the many dealers' yards, which they must pass during a morning's walk through the streets of London.

One side of such a place is always thickly littered with straw, and securely roofed in. Slowly riding up and down this covered way may be beheld a mounted groom, who is leading another horse. Now, horse dealers are not deficient in knowingness, and many of them have, during former years, been in service themselves. Therefore, most of the class are well acquainted with the secrets of domestics; and they never trust a steed to be exercised where some of the family may not overlook the groom. "Oh, yes, they do!" the reader may exclaim; "for I have often remarked 'breaks' being driven through the highways of the metropolis." Perfectly true! Such articles are to be met with in the middle or the after-part of the day, propelled by high-actioned and well-matched horses. A little inspection will show the reins are in the possession of no ordinary groom. The master or the foreman guides the quadrupeds which are then being shown to the public, and are not simply raw purchases receiving exercise.

Dealers always exercise the horses at home; the windows of the house invariably face the ride. Every London inhabitant may not be able to command a covered way opposite his drawing-room windows; but he may prevent his servant from playing tricks with his animals, by ordering the man, when out exercising the creatures, to pass the family residence at stated periods. By such an arrangement, some of those strange accidents, which occasionally spoil the proprietor's breakfast, and which are ever reported to him as having been done by the horse in the night, might be prevented. While the owner, by claiming a right of supervision, would also instruct his servant that the quadrupeds the servant is engaged to attend upon are not absolutely given up to his pleasure.

The proprietor will, however, gain much by never permitting his

animals to be exercised off the premises. This can only be done in the country, or where an ambulatory surrounds the stable. Under a sheltering roof all weathers are immaterial; the owner can easily ascertain whether his commands are shirked or fulfilled. A sick or a lame horse can be led about upon such a spot; for the soil, consisting of sand, and being always kept properly watered, is cool and soft to the feet, as well as free from dust; while a machine called a "tell-tale" will in some measure announce the time which the quadruped may be kept walking; it will also bear testimony as to the rate at which the man travels.



A PEEP INTO A DEALER'S YARD.

These things, when supervision is impossible, are now left entirely to the groom; whereas a "tell-tale," fixed at any part of the building, will render the rate of exercise cognizable to an absent master.

Exercise should never, save in illness, be given at a less pace than four miles an hour; the horses, while it is administered, should always

be clothed more lightly than when standing still within the stable. It is fashionable for a groom to exercise a horse in full body-clothes: such a custom seems like tempting cough and cold, to which the quadruped, in this climate, is too much disposed. It must feel the change when its owner rides forth upon its unclothed body, and must suffer severely, should the master not return to the stable till the sun is down. Any active man should with perfect ease walk four miles in an hour; but such a rate is quick enough to oblige the animal to proceed at a gentle trot, which should not provoke perspiration, but will be sufficient exertion to promote a healthy glow of the skin.

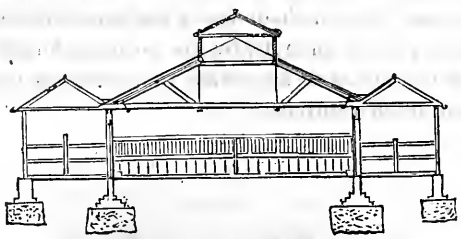
Each groom, when on the ambulatory, should walk between two horses, holding a rein in either hand. Should one of the animals show signs of excitement, he is to leave the quiet one behind to the care of any person who may be at hand, and to run once or twice round the building with the spirited steed. Such a manœuvre is all that is necessary to quiet those creatures which, on first quitting the boxes, may skip or prance about.

When returned to the stable, the horse does not enter solitary confinement. Its loose box is eighteen feet square, and is inclosed by a fence seven feet high. Only four feet of this partition is composed of close inch and a half boarding. At that height, a stout rail, having its edges rounded, is fixed upon the topmost edge of the wood-work. From this rail spring round iron bars, placed three inches asunder, and having the higher extremity inserted into another rail, which is also rounded.

Since the author, many years ago, first thought of an open trevise, he is happy to see the idea has been generally adopted. Too many of the parties who embrace the notion, however, make it secondary to ornamentation, and compel the simple intention to assume the shape of scroll work or of an elaborated pattern. The object is to permit the prisoners to see and to communicate one with another. Both of these purposes are better attained by a straight iron bar than by a fanciful decoration, which last, moreover, must be further objectionable on the score of expense.

All needful security would be well assured by an inclosure which, unlike the common trevise, would allow the quadruped to see its companions, and to exchange those recognitions which must lighten the tedium of captivity. Nor can the writer comprehend why such simple pleasures should be denied to these gentle creatures, which most men imprison more closely than carnivorous ferocities are commonly confined. The prevention of certain deadly diseases might apply to the stables of an inn; but such occurrences have no right to be regarded as probabilities when a gentleman's establishment has to be considered.

The bars forming the upper portion of the divisions are not so close nor so bulky but the interspaces will allow the horses, after the Australian mode of cementing friendships, "to rub noses," or to exchange large draughts of fragrant breath with their fellow captives. Such innocent familiarities will often lead to lasting friendships, from the establishment



SECTION OF THE LOOSE BOXES.
Supposed to be taken where the dotted line A B is situated upon the ground plan.

of which the proprietor will reap an advantage. Quadrupeds perform much more gayly when harnessed with a companion that they love; and should the owner be, at any time, pressed for room, one or two additional spare boxes can always be commanded by allowing equine friends to enjoy the same compartment.

There is, however, running throughout society, a strange prejudice against permitting any communication between the inhabitants of the stable. Such a dislike cannot be justified by appealing to nature, as horses, when free to exercise a choice, always congregate in herds. Neither is it warranted by universal custom. In cavalry stables, the quadrupeds are merely separated by bales, or by poles suspended at either extremity by chains, and hanging between the animals. The habit also does not gain any support from consistency of conduct; since the gentleman who shall shudder at the possibility of any communion in his stable, will, nevertheless, allow numerous equine creatures to assemble together, and leave them without check, when he turns his stud into the field to be "freshened up" by a "run at grass."

The boxes have each a distinct entrance. The doors are fixed in the wall, and open upon the ambulatory. Each entrance is nine feet high and six feet six inches wide, all sharp edges and projecting iron-work, as hinges, latches, locks, etc., being strictly forbidden. Such things often injure animals while in the act of passing through these openings, and should never be permitted to project in any well-managed establishment.

The folding doors are divided into two parts, though not absolutely in the center, since the lower portion extends only four feet from the ground. The upper part can be thrown wide, without releasing the

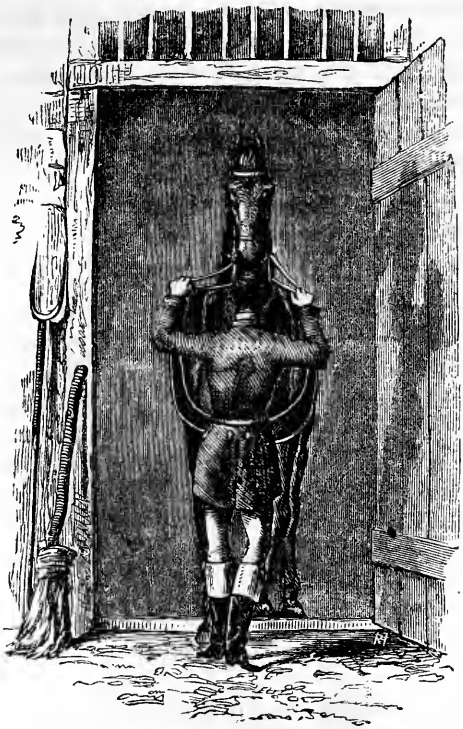
quadruped. The ventilation is thereby rendered far purer, while the captive is indulged with a more animated view than the walls of the interior can afford. The quadrupeds will protrude their heads through such spaces, and remain in that position for successive hours, looking the pictures of mild contentment, and contemplating liberty, which a generous nature appears to have relinquished almost without regret. A simple creature may here in shade enjoy the summer breeze, as it blows aside the forelock; for if man is, by his position, forced to confine the steed, he is not compelled to aggravate the sufferings which necessarily attend the condition of captivity.

A HORSE LOOKING THROUGH THE HALF-OPENED STABLE DOOR.

The doorway, being of those dimensions which have been already described, should afford all necessary security, especially when the groom adopts the proper method of conducting an animal through the ample space.

No possible accident should impress the memory of the captive with the notion that doors and anguish are associated one with the other. The habit of the animal, being accustomed to advance the head through the upper space, would, moreover, be of some service in dispelling all idea of pain, should the impression have been received prior to the horse coming into the possession of its present owner. The sight also of the

man, to whom the affectionate creature may be attached, would, moreover, attract the notice and inspire the confidence of timidity.



CONDUCTING THE HORSE THROUGH AN ORDINARY STABLE DOOR.

The lower division of the door should, on fine nights, after dusk, be opened, that the prisoner may stretch its limbs and bathe its hoof in the evening dew. So the grass is kept sufficiently short, not to afford more than a nibble, no harm, but much good, will arise from sanctioning so innocent a luxury as a stroll in the free air. The eye of the horse fits the creature to roam by night; and man should, by this time, have suffered enough to cause a doubt as to the wisdom of crossing nature in her many wonderful provisions for the welfare of her children.

Such a suggestion may startle the prejudices which are inherent in the proprietors of most training stables. These places are, however, chiefly situated on the open downs, where ground is cheap, and the herbage scarcely affords a bite for the close-feeding sheep. Half an acre of such land could, without much expense, be attached to each box. On to this

the flock might be turned by day; but so much liberty could be afforded the equine captive during the night. The racer being reared for speed, it is surely wrong to cramp its limbs by too stringent a confinement!

Something also is attained, beneficial to other parties than the quadrupeds, by having the doors of the boxes to open on the ambulatory. The necessity for mounting many animals within the stables would thereby be avoided; while the groom, upon rainy days, need not exert a dangerous haste, for fear of wetting his best livery. Hurry is never a safe emotion, when exhibited within the stable. The inhabitants, when they behold their attendant looking vexed, see him move quickly, and hear him speak loudly, from such signs infer danger; or timidity flushes with a certainty of his displeasure. It is the fault of the present race of stable-men, that they regard the horse as a senseless thing; whereas the dumb are always the observant, and, generally, are very sympathetic. They draw conclusions from scenes and acts which it may be beyond their stretch of reason to accurately comprehend. Being liable to misconstrue, the less they see of exciting spectacles the better.

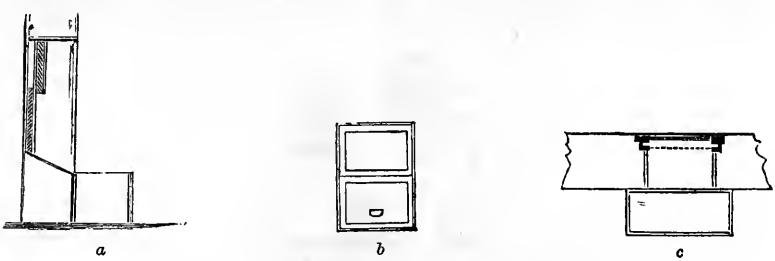
Within the loose box there is no rack for hay, to strain the horses' necks, and shake seeds into their eyes, which must be open to direct the teeth. The ordinary manger is also absent. The horse does not sit to eat, nor can it lift the food to the mouth; but naturally it lowers the head to its gratification, and thus has no need to be accommodated with exalted fixtures. As it can with ease feed off the ground, why should man, in the nineteenth century, persist in forcing the animal, which he domesticates, to forego the habits which nature has engrafted on existence?

No rope fastens an animal directly under the opening to a dirty hayloft. No puffs of cold wind, therefore, can blow upon the quadruped through such an aperture, which is not a loss, for horses are very susceptible to colds, which modern stables are ingeniously arranged to encourage. Like all life, when hotly and impurely inclosed, the steeds become morbidly delicate: the pampered daughters of the wealthy cannot, possibly, be more vulnerable to evil influences than are those equine slaves, whose service demands a body vigorous with health, strong and able to encounter all the seasons in their vicissitudes.

There are, within the building, three small compartments, placed against the outer wall of each box, and resting upon the ground. Two are situated on one side of the entrance, the third stands by itself in the opposite corner. All project eighteen inches from the wall, and two are eighteen inches high. One compartment is used for water, and is raised two feet, being, as regards length, of the same dimensions. One is intended to hold prepared food—this is three feet long; while that meant

to receive the occasional allowance of grass extends one foot beyond the last dimension. The bottoms of the food receptacles are both raised six inches from the level of the stable; an arrangement which hopes to anticipate any strain upon the muscles of the neck, should the animal be more than usually compact in its developments.

Certain horse proprietors are loud in their commendations of cut food, which they assert can be eaten quickly, and, therefore, allows so much longer a period for resting the body. Stable condiments also are advertised as fattening and appetizing adjuncts. To both propositions the author must object. The body's rest depends not upon the quickness with which the contents of the manger can be swallowed, but upon the ease with which they can be digested, after sustenance has entered the stomach. The last function is not facilitated by the provender being bolted; nor does it at all depend on the shortness of the period in which a certain quantity of victuals can be put out of sight. As to those stimulants which are supposed to increase the appetite and to favor the accumulation of fat, carters having, for ages, been condemned because they resorted to such nostrums, it is difficult to understand the reason why these things are patronized, when openly compounded, puffed, and sold by advertising tradesmen.



SECTIONS OF THE SHOOT LEADING TO THE FEEDING TROUGH.

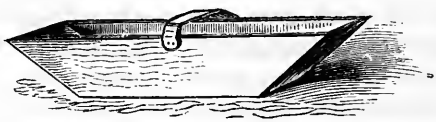
a. The movable or sliding shutter, which, by a slanting surface made within the substance of the wall, leads to the corn trough that is situated on the ground.

b. The sliding shutter let into the wall, the lower compartment of which alone admits of an upward motion.

c. The corn trough and slanting surface, guarded by the shutter, as seen from above.

The capacity for rest, moreover, depends upon the constitutional necessities of the body which is to enjoy it. The horse is a creature of activity. It sleeps lightly, and is fitted to eat its food as it walks. The quadruped requires little rest. To force those conditions, necessary for the repose of weary existence, upon wakeful life, such as silence, solitude, and darkness, is merely to increase the severity of that imprisonment which every English animal is born to undergo. It is torture, and betrays only the ignorance of those by whom such cruelty is practiced.

The receptacle for the prepared food can, by means of a sliding aperture inserted into the wall, be filled from without: thus the necessity for a groom entering the compartment of a restless or ravenous quadruped, whenever the animal is fed, may be avoided. Contention between the man and a voracious horse can be, by this arrangement, rendered an impossibility; and it is a great point in the conduct of a stable to keep the attendants in good humor. Ignorant servants, when enraged, are too much disposed to vent their bad temper upon any inferior over which they may be invested with authority.



ONE OF THE BOXES IN WHICH THE FOOD IS PLACED, THE BETTER TO SHOOT IT INTO THE CORN TROUGH.

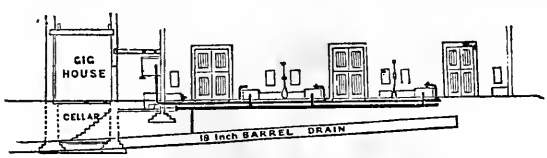
Moreover, a great deal of the excitement generally displayed by particular animals, where every prisoner can witness the distribution of the food to the rest, is, by the above plan, entirely abolished; and every observant stable attendant well knows how greatly quietude favors a speedy attainment of, as well as tends to, the preservation of condition.

A GROOM SHOOTING FOOD IN THE TROUGH, WHILE STANDING OUTSIDE THE STABLE.

By means of the box and the sliding shutter, the food may be served to all almost as rapidly as a man can walk. The provender is first divided into portions, and these are put into open boxes, which are placed upon a barrow. One of these boxes the man empties through each shoot,

and then, having washed out the utensil at the pump under the covered way, returns it to the provender-house. This last plan, however, entails some trouble; therefore only in exceptional cases should it be adopted.

As to the supply of liquid, some arrangement is also needed: the bottom of the water trough is level with the surrounding pavement. The supply pipe is commanded by a tap, and all the receptacles can be simultaneously filled by means of the tube that rises above the superior margin of the trough. Below the earth is a conduit, which conveys away the superabundant liquid. Into this tube or drain two smaller pipes empty, both of which arise from the interior of the receptacle. The smallest pipe reaches almost to the topmost edge of the compartment, and is simply intended to prevent the possibility of an overflow. The other and the larger tube is inserted into the bottom of the trough, and the removal of a plug, which commands the entrance, permits the contents of the trough to flow through this pipe into the larger conduit below, which empties its contents into the main tubular drain. By turning on the supply, which is derived from a cistern to be hereafter mentioned, and by also opening the waste pipes, all the troughs can at any time be quickly cleansed.



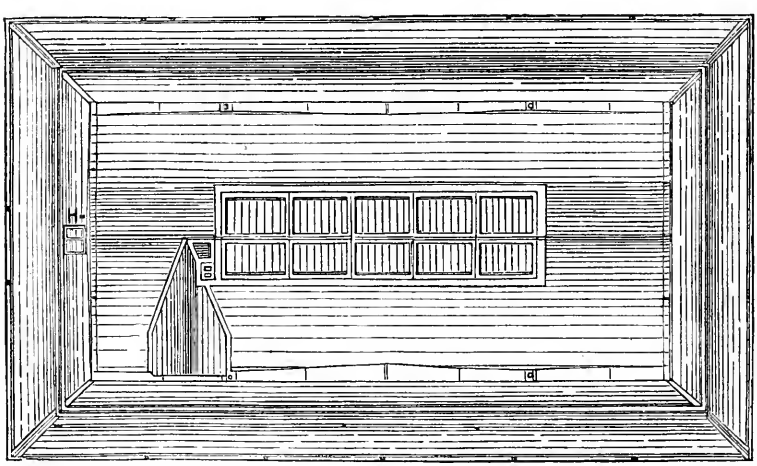
LONGITUDINAL SECTION OF THE WATER SUPPLY.

The cistern is situated in the boiler-house, and is elevated several feet above the level of the stable. The boiler-house adjoins the boxes, and from the raised cistern springs the supply pipe, which is carried under ground through the stables. Water, however, will always rise to its own level; this property convinces us that the troughs will be speedily filled whenever the taps are turned. The taps by which the flow is commanded are both placed in the first box, and by this arrangement the animal can receive fresh water four times daily, without fluid being carried to the horse. The contents of the customary pails are too frequently spilt by careless grooms. The horse naturally thrives best in a dry abode. Besides, the drink, as in nature, is always before the creature; for if presented only at stated periods, the draught may be offered when desire does not require liquids; or it may be withheld when thirst is so powerful as to engender a disinclination for solid nourishment

Moreover, servants are not always attentive to their monotonous duties; and the animal, in consequence, may be denied a necessary supply of fluid.

The water troughs are, moreover, recommended by further reasons. Horses are blest with acute senses; and everybody must have observed the animal blow upon, or rather smell, fluid before it partakes of the refreshment which it needs. The stable pails generally stand about; such things are exceedingly handy; and we need not be surprised if they are occasionally used for other than for cleanly purposes. The troughs, being fixed, are secured to one service; the pipes emptying into the receptacles prevent the purity of the supply from being tampered with. The above advantages are also associated with the ascertained fact that the horse, with water constantly before it, drinks less than the animal to which the pail is brought only after hours of enforced abstinence have generated a raging thirst.

The roof of the proposed stable should be of the ordinary description, or should slope from a central ridge toward the outer walls. The central compartment is eighteen feet from the walls; it is twenty-two feet from the level of the interior; and its margins rest upon walls which are raised twelve feet high.



PLAN OF ROOF.

H. A trap door in the roof of the ambulatory, which leads to the entrance of the loft above the sheltered ground.

A plan of the contemplated roof is presented to the notice of the reader, who will perceive it consists of two parts. The larger portion is gabled at each extremity, and has a span of thirty-six feet. The

smaller, or surrounding division, merely protects the covered ride or ambulatory. Where the two inclines meet, are hollows, which are technically spoken of as "valleys." The water within these valleys is conveyed away by means of four large pipes, two on either side, which are let into the outer wall; while the rain, which flows down the outer incline of the smaller division, drains into a metallic gutter, whence it is carried away by fifteen smaller pipes.

Over the center of the larger division of the roof is placed a ventilator. It commences twenty-one feet from the northern extremity of the building, and it extends, on either side, six feet from the center. It is thirty feet long, and its sides are four feet high. The sides are composed of four-feet louvre boards, which, being set in working frames, can, by means of lines which reach to the ground, be opened or closed as the increased temperature calls for air or the cold demands protection.

The ventilator is roofed with six-ounce glass, which is of more than a sufficient stoutness to resist any tempest that occurs in this climate. The central ridge of the ventilator rises twenty-eight feet from the pavement; and it is laterally supported by the boarded sides which have already been described. The roof of this part of the edifice also serves the purposes of windows, admitting light to the interior.

Should any person feel disposed to complain of the probable cost likely to attend this last provision, let such person remember that the first oulay, in this particular, is likely to be the last. The material is, moreover, cheaper than it formerly was; while its elevation removes it from all reasonable chance of breakage. The rain will wash the outer portion, while the position of the interior surface will prevent the accumulation of much soil; consequently the glass will be spared all those accidents which too frequently disturb the peace of housekeepers during the cleansing of ordinary windows.

The glass is designedly placed upon the roof, as when stable windows occupy the usual situations, they are generally suffered to be in so foul a condition as almost to counteract the purpose of their institution. Some of the panes are commonly broken; and where the glass is absent, its place is rudely supplied by rags or by paper, while the window-ledge is crowded with those articles which it is desired should be ready to the hand, or which it is wished to store snugly away.

When a stable is without windows, the dark house encourages a lazy servant. The architect's neglect also teaches the man a want of regard for that cleanliness which is essential to the well-being of the horse. With such a place, the absence of care soon becomes an unavoidable necessity, which the cunning of ignorance will not be slow to perceive, and to act upon, as being a justification of idleness. Nothing either in

or about the stable should be sanctioned which would not accord with the cleanliness of a home or with the sweetness of a dairy. No dust should be suffered to accumulate in holes or on beams; while the animals are taking their early exercise, the flooring ought to be thoroughly washed down every morning, and the wood-work should be scrubbed once every week.

A stable, to be the abode of health, cannot command too much air, nor can it possibly admit too much light. The interior, however, should not be whitewashed in accordance with the general fashion. This glaring absence of color may, at first, look excessively clean, but it also exposes the smallest neglect of purity, which cannot always be present where animals are lodged. The cheapness of the wash may be its recommendation with those who are very studious of economy; but, in the end, it proves a dear substitute for a better covering, as a white surface causes that strain upon the optic nerve which renders blindness a common malady among the inhabitants of snowy regions.

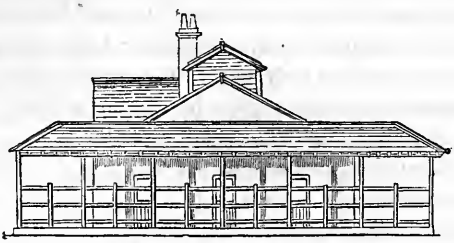
Let the roof and walls be colored with a green which is made by mixing blue and yellow together. The light will, by the green tint, be partially absorbed, while the eye of the captive will be soothed by gazing upon the hue which constitutes the livery of nature. The pigment should not be purchased, for though the color which may be bought will be probably brighter than any made at home, excessive brightness is, in the present case, no advantage, and the more brilliant compound is dangerous, because it may consist of arsenic combined with copper. Or should a brighter color be very much desired, such can now be obtained, which is uncontaminated with any preparation of arsenic: though, probably, at a greater expense than that which is easily made by mixing together damp blue and powdered yellow ocher with size and water.

The roof is slated; but as this species of covering is always very hot in summer and equally cold in winter, the temperature of the interior will, in some measure, be less liable to such variations if the spaces between the joists are filled with solid plaster. Over the last material laths are nailed; and the surface is then to be thinly ceiled. The laths should, however, be of a stouter kind than those which are generally employed; the reason of their introduction is to anticipate the possibility of heavy lumps of plaster falling, and either injuring or frightening the horses.

The reader will now accompany the author to the back of the imaginary stable, which faces the north, and is divided from the last loose box by a stout wall.

The northern extremity is of the same width as the other parts of the

building; it extends twelve feet beyond the last loose box. Its interior is divided into three rooms, each twelve feet square, and all separated by brick walls. Entrance to these apartments is gained through three doors, the upper parts of which, being glazed, will also serve the purposes of windows.



ELEVATION OF THE NORTHERN END, OR BACK OF THE STABLE.

The center division is sacred to the harness: it is kept warm by means which will be hereafter described. The trappings of the horse are too perishable and too costly to be housed within the stable. Damp, dust, and ammoniacal fumes are all injurious to this expensive article. Damp cannot but be present in the abode of animal life; the breath, insensible perspiration, evaporation from the water-troughs, washing of the pavement, hoofs, etc. are the common sources of the supply. The dust is occasioned by the spreading of the litter, the movement of the grooms and of the animals, as well as by many causes of motion, which can never occur without sending the finer particles of decaying matter flying from the various substances which are strewn about. Ammoniacal fumes are also generated by the decomposition of the equine excretions; however carefully the interior may be drained, or however pure the atmosphere may seem to human sense, this gas must more or less exist in every stable. Such taints, besides damaging the substances, also necessitate extra cleansing; though moderate attention is preservative in its nature, anything approaching to excessive labor not only destroys the fresh aspect of the harness, but is provocative of its speedy annihilation.

Within the harness-room all the clothes (after being dried and aired) are to be placed, and in this apartment every piece of harness (subsequent to being cleansed) should be stored; it is there hung upon appropriate fixtures and kept ready for instant use, being protected by thick curtains, which are made to fall over and to cover the several pieces.

On the left of the spectator, looking toward the building, is another room, which acts the part of a hay-loft. Within twelve feet square is stored all the provender and the litter immediately required for the

horses. The space may appear somewhat limited for the supply of six horses; but enough for present use can be housed, and grooms are not rendered careful by the contemplation of anything like a superabundance. It is the filthy custom, now prevalent, to keep the food of a cleanly animal in a loft immediately above the stalls in which the horses are confined. Thus the store-house is commonly located in the situation which is the most directly exposed to the volatile or the heated emanations of the stable.. Nor is this the only source of contamination. The groom's living and sleeping apartment opens by a door, which is not generally shut, and immediately leads to the equine pantry.

The author dare not further pursue this topic. The fancy of the reader, guided by the above facts, can readily picture everything that could be written about the fitness of provender thus housed, for promoting the health of a creature remarkable for the niceness of its habits, the acuteness of its senses, and the delicacy of its tastes. It may be forced to consume, and may, at length, morbidly "grow fond of that it feeds upon;" but such food cannot otherwise than undermine the health which sustenance should promote.

On the opposite side to the harness-room is another compartment, which is used as a tool-house. There are various items employed about a stable which commonly litter the space inhabited by the horses,—such as brooms, mops, forks, pails, combs, brushes, leathers, bandages, etc. Everything occasionally used, or daily employed, either on the animals or for the vehicles, is deposited in the tool-house. For such articles as come under the denomination of lumber, and are not of any present or probable utility, another place is provided, which will be shortly alluded to.

By thus allotting a store for everything, and encouraging habits of regularity, a considerable sum is saved, while the comfort of the grooms is provided for by every article being, at all times, to be readily found. By ordering all appliances to be carried back when no longer in use, nothing is left about the stable to litter the place, or be damaged by the animals.

Stable implements, in the hands of an irate groom, have proved terrible weapons of offense. A horse has been stabbed with a fork; a blow given with the edge of a pail has inflicted a fearful gash. The formation of the cranium in most existing stable attendants should suggest the prudence of not allowing temptation to be too convenient to such individuals when they become excited.

Having inspected the northern extremity, the reader will now be kind enough to move, in imagination, to the front of the erection. Before this can be seen, the sides and northern end of the ambulatory, or cov-

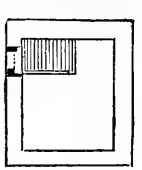
ered ride, will have been observed; in the front view, the intermediate posts and rails, which elsewhere define the path, are absent. The floor of the ambulatory being raised on all sides two feet above the surface, from the level of the front there extends, for twenty feet, a sloping pavement, which gradually reaches the surrounding ground. This arrangement is fully illustrated in the frontispiece to the present volume.

ELEVATION OF THE SOUTHERN END, OR FRONT OF THE STABLE.

The stable, notwithstanding the last provision, is not supposed to be placed on a marsh, within a hollow, or even upon a decided level; but, when a choice is possible, it should be located upon the brow of a hill. It is there favorably situated for the dryness of the interior as well as for the action of the drains.

Having defined the position of the building, the author will now consider the last engraving, which was an imaginary front view of the supposititious building. This portion of the erection stands before the loose boxes, and, like the back, is also divided into three compartments. It is separated from the stables by a stout wall, consequently there is to the interior no entrance by this direction.

The corner space to the left of the spectator, who is supposed to stand in front of the edifice, consists of one room, which is plastered, ceiled, and boarded—the dimensions being by breadth twelve, by depth eighteen feet. The entrance is guarded by a pair of well-made and closely-fitting folding doors. The interior is meant to serve as a double coach-house. The place is made as comfortable and is kept as free from drafts as its uses will permit.



PLAN OF THE COAL-CELLAR, WHICH IS IMMEDIATELY UNDER THE GIG-HOUSE.

At the opposite corner exists a similar but smaller apartment. It possesses doors like the first; also, it is similarly provided with such things as ceiling, plaster, and boards, which are not customarily to be seen in these places. The room is as wide as the coach-house, but reaches back only ten feet; it is meant to serve as a gig-house. Beneath the flooring is the coal-cellar, and which is gained by a trap door cut in the floor of the present apartment. Close to this trap

an entrance is pierced in the parting wall; and upon the last door being opened, as well as the trap being raised, a direct descent is formed, leading immediately to the cellar.

Between the gig and the coach house there must exist a clear space, eighteen feet deep, twelve feet wide, and of the last extent in height, when measured from its roof to the pavement, which is level with the ambulatory. The covering to this ground being flat and less lofty than the slates of the building, is proof that a clear space must exist above it. The place itself, however, contains nothing that can tempt cupidity. It is evidently a sheltered ground, where the carriage may be got ready, the harness may be cleaned, or any job be executed which might soil other portions of the interior. Such a spot is handy for many purposes, and serves as a loitering chamber for those idle gossips who delight in hanging about large stables.

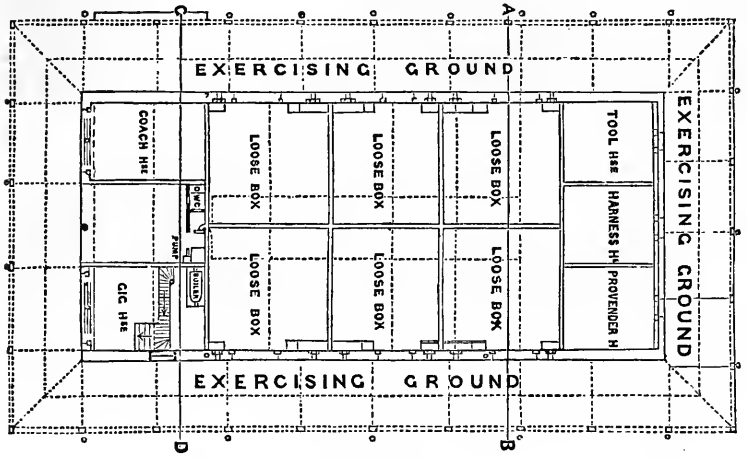
Against the wall of this last locality, and near to its right-hand corner, is a projecting block of brick-work, which measures three feet by two and a half feet. It is evidently neither useful nor ornamental; therefore the reader rightly conjectures it merely indicates the presence of a chimney. Close to the chimney, but nearer to the entrance, is fixed a pump. From a plug, ready to be inserted into the muzzle, and from a pipe running some feet up the wall, which it ultimately pierces, evidently the pump is occasionally used to force water into a hidden receptacle situated above the surrounding level. In the left-hand corner of this clear space is built a convenience for the stable servants, which should be kept as clean as any other part of the edifice.

Looking once more at the front of the stable, we perceive there is a clock above the sheltered ground, while immediately under the clock something resembling the top of a door can be discerned. The roof of the ambulatory has also a trap let into it, which must be situated directly beneath this door. The trap being raised, and the door opened, by means of a ladder, which should hang upon the outer side of the ambulatory, admittance is gained into the clock-loft: by this means the works of the time-piece can be regulated; while the remaining space affords ample accommodation for storing, and also offers a spot where are housed those articles which are of no immediate utility.

Between the gig-house and one of the first loose boxes there is a space of eight feet by twelve feet. This forms a room which has two entrances: one is by a door pierced through the wall of the gig-house; the other is by a door, the upper part of which is glazed, and which opens from the ambulatory. Leading to the floor of the apartment are placed before each door two steps, the pavement of this room being two

feet lower than any other level in the building. The ceiling, however, is ten feet removed from the floor.

In the farthest corner, raised against the northern wall of the compartment, is situated a self-acting and slow-consuming boiler. The fire faces toward the door, and the chimney has already been alluded to as built out on to the covered ground. Commencing in the farther corner, at the opposite extremity to that occupied by the door leading to the gig-house, is a staircase, which obviously conducts to an upper apartment.



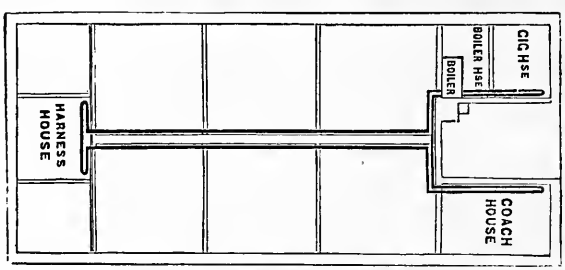
GROUND PLAN.

The oblong space above the loose boxes, which is indicated by dotted lines, denotes the size of the central ventilator.

Above the boiler, and removed but one foot from the ceiling, is a cistern, which occupies the entire length of the wall, or extends for twelve feet: it is four feet high and three feet wide. The situation of the cistern explains the use of the forcing pipe, which leads upward from the pump and supplies the cistern as has been noticed. From this reservoir the boiler is replenished, and the water troughs are kept perpetually filled. The pipe leading to the stable quits the cistern at eighteen inches from the bottom; consequently the horses will want fluid, while the cistern holds a supply sufficient to last some time when only used to fill the boiler. This arrangement involves a necessary artifice. Pumping is hard work, and grooms are not famed for a love of mechanical labor; but these men are always clamorous at any stint within their dominions. They will grumble loudly if the horses lack water, and persecute their fellow, whose turn it may be to pump, until the defect is remedied; whereas the boiler might become red hot, and an

explosion threaten to demolish the building, without one of these people being moved by the likelihood of such a catastrophe.

From the boiler proceed pipes which travel into the loose boxes, into the harness-room, into the coach-house, and into the gig-house. Within these tubes circulates warm water, the fluid being returned again to the boiler when its caloric has been diffused through the interior. Few persons imagine how important warmth is to the welfare of the horse. Cold immediately roughens the coat, and if not speedily counteracted, stiffens the limbs or depresses the spirit. Were gentlemen willing to maintain the temperature of their stables, that lengthy coat, which nature now sends as a needed protection, would not be produced: the follies and the barbarities of clipping and singeing might then be abolished. The animal which is properly lodged can alone attain the limit of possible perfection.



PLAN OF THE HOT WATER SERVICE.

Impure heat generates damp: the moisture derived from such a source, being finely divided, is far more penetrating, far more destructive, and altogether more noxious, than a similar amount of water could prove. It destroys clothing, encourages moths, dims plated and painted ornaments, rusts steel, soils varnish, rots wood and leather,—in short, there is nothing within the stable but suffers more or less; while in the animal, colds, coughs, and influenzas are but the intimations of its presence, the full effects being shown by the breaking forth of farcy and of glanders. Better be without horse and stable, than to be possessed of both, and be forced to lodge the quadruped where cold and damp prevail.

Few gentlemen care about, or probably no gentleman has ever seriously thought about, the coach-house being aired. Yet persons tenderly brought up, nursed in luxury, and frequently in delicate health, have the carriage kept near to a close stable, or housed in a building sadly exposed to the moist atmosphere of this northern climate. The vehicle is pulled out of such a place, is hastily made to wear an outward smartness, and is then whisked to the front door of the mansion. Ladies,

habited in the thinnest of evening dresses, leave their warm apartments and subject their exposed beauties to the chilling effects which must necessarily be present in vehicles so carelessly sheltered. Here, after the bustle of preparation, they remain inactive for some period. They are set down at a fashionable hotel, and return thence in the same conveyance. The next day they naturally complain of a cold, supposed to have been caught *at* the party of last night!

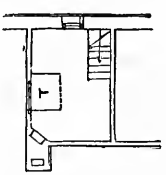
People when seated within a carriage, the windows being up, may esteem themselves protected from the night air; but they would be safer walking through frost or rain than traveling inactive within such a receptacle. Consumption is far more prevalent among carriage folk than it is common among races which are supposed to exist in spheres liable to all the ills of life. Poverty has to encounter many perils, and is obliged to endure many privations; but it is not exposed to those snares which the ignorance of wealth has invented for its own destruction.

Perhaps, in this country, of many classes, the richer are most troubled with colds, with coughs, and with diseases of the air-passages. Good living, no labor, and careful nursing may enable them to linger on to a good old age; but comparatively few know the blessings of a vigorous being after the fiftieth year has passed. Warm rooms, a study of the weather, and ample envelopes prolong the life; but such things cannot restore the health. Gout, paralysis, epilepsy, with numerous brain disorders, are not common in agricultural districts, where carriages are scarce. Bronchitis and laryngitis are almost the property of the wealthy. Yet many men have paid pleasing compliments to the aristocracy concerning their longevity; but no one has hitherto traced the cause which bows the youthful scion to an early grave, and makes a valetudinarian of the noble who should be still enjoying a vigorous middle life. Invention has been racked to keep the feet warm when within the vehicle; but it seems not to have occurred to those numerous parties whose office it is to minister to the luxuries of the rich, that the interior of a carriage might be benefited by a secure lodging, or by its being thoroughly aired. Such conveyances, for hours, during the most rainy nights, crowd about the doors of fashionable mansions, the woolen lining or the cotton covering of the interior imbibing the malaria which resides in the heavy midnight atmosphere of most large towns. Women, in the tenderest dawn of approaching maturity, and flushed with the pleasure of the dance, enter these seemingly-sheltered receptacles, where, lulled by the motion, they soon fall asleep. Activity is changed for instantaneous stagnation; the bustle of amusement for the stillness of repose; the heated room for the cold interior of a damp carriage; and, during the drive home, every

pore of the body being open, need we feel surprised should the seeds of any lurking evil be kindled into activity?

It is better to be without a carriage than to command one of the ordinary description; one that is seldom employed, or that is kept in a moist shed. All which comfort requires might be attained, were damp excluded from the coach-house, and were this portion of the building warmed with the same means as keeps up the temperature of the stable. To prove how readily and how cheaply this might be accomplished, the warm water pipes which enter the boxes and the harness-room also penetrate the coach-houses—all being supplied by a furnace which is denominated "slow-consuming."

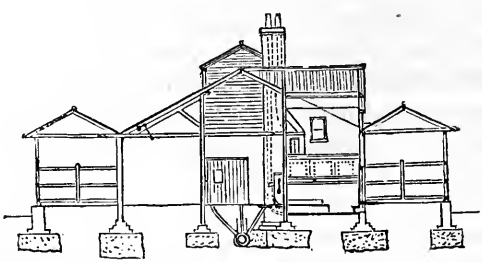
These boilers are of modern invention, and do not require constant attendance. They occupy comparatively little space; and as they burn coke, of course they are maintained in operation at small expense. An advertisement informs the author they can always be seen in operation at No. 155 Cheapside, being denominated "Riddle's Slow Combustion Boilers." They are merely proposed to the reader as the most recent improvement of which the author is apprised.



PLAN OF THE WATCHER'S-ROOM.

T indicates the position of the trap, which allows of entrance to the interior of the cistern.

Having enlarged upon the advantages to be secured by the existence of a boiler, the reader must next accompany the author up the stairs which lead from the boiler-house to the room above. Close to the northern wall, near to the center of its space, is seen an ample trap door. Recollection assures us it is situated immediately over the cistern; its evident use is to permit the reservoir to be



SECTION OF THE INTERIOR.

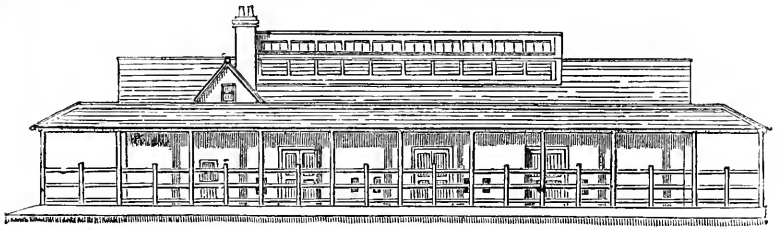
Supposed to be drawn where the letters C D point to a line which runs across the ground plan.

cleansed of the deposit which most kinds of water will soon leave behind. Additional room is secured for this small apartment by the insertion of a large dormer, or garret window, which allows the ceiling to be

even with the highest rafter of the roof. There is also another and a smaller window, that enables the person looking through it to command a perfect view of the stable.

Connected with this apartment is a bell, which sounds in an adjacent cottage, where the grooms reside. Should assistance be required, the bell, being gently touched once, intimates that the help of one groom is necessary. A violent ring indicates the need of all haste. Two sounds announce that two grooms are wanted. Thus the number of men is always told by the number of sounds; and the occasion for quickness is suggested by the violence with which the wire is moved. A number of loud sounds, rapidly succeeding one another, is a signal to come immediately, and to bring such extra assistance as can be readily procured.

Another advantage is secured by a man being awake, and upon the premises. The present necessity for cramming the entire quantity of food down the animal by a particular hour is thereby avoided. The natural habits of the horse can be attended to, the animal not being left twelve long hours alone and without employment. The five feeds might be better distributed if given at six in the morning, twelve in the day, five in the afternoon, ten at night, and two o'clock on the following morning. If this plan of feeding were tried and the fodder properly prepared before being placed in the manger, the animal would enjoy its provision more, and fewer complaints would be heard about the fastidious appetite of a creature whose natural propensities are, by present customs, openly violated.



THE ELEVATION OF THE EASTERN SIDE OF THE CONTEMPLATED STABLE.

The night watcher of a stable has more serious duties to perform than most people associate with a comfortable, although a humble room. The groom, having finished the day's work, ascends to the apartment, and remains there until his fellows return on the following morning, or unless some business occasions him to quit it. There are light, fire, table, chair, couch, and rugs provided. The man is not forbidden to sleep; but while he rests, the window which overlooks the

stable should remain open, so that any noise within the boxes may disturb his repose. The watcher is expected to wear his clothes through the night, so that should an accident, at any time, require his aid, he may always be prepared to afford assistance; or should any horse be returned, after the other grooms have left for the night, he may be ready to receive, to dress, and to feed the animal.

The architectural designs which embellish this part were drawn by the author's brother, Mr. Julius Mayhew, who, under the inventor's direction, will be happy to employ his talent in erecting the supposed stable for any gentleman intending to follow out the plans which have been exhibited.

CHAPTER X.

GROOMS—THEIR PREJUDICES, THEIR INJURIES, AND THEIR DUTIES.

GROOMS, if generally the most loose of servants, are, by the middle classes, morally subjected to the worst treatment of all the domestics. In the larger number of the purely "*genteel*" families, they occupy an intermediate and an uncertain position. Few of them live in the house; but all of this order have household duties to perform. Very many have to clean the family boots; to rub up the mahogany; to polish the plate; to wait at table; and to fill those multifarious offices which every woman is certain no female ought to discharge "while there is a great hulking fellow on the establishment."

The author does not altogether dissent from the somewhat coarse conviction just recorded. Where a single conveyance and one horse are kept, folly alone could pretend that these can, or should, occupy the entire services of a male retainer. It is far from unreasonable to impose other duties upon the man: only the horse and the stable should be allowed to have the foremost claim upon the groom's attention. Whereas, at the present time, the animal is made secondary by the authority of the mistress; its attendant is too often so crippled with multifarious employments that it is at chance times only an opportunity is found to discharge the obligations of the domestic's nominal office.

In suburban villas, where only one man is kept, the groom often is expected, over and above the foregoing list of duties, to keep a garden in order. To be sure, the vast majority of genteel grooms understand quite as much about horticulture as they really comprehend concerning horses. If asked for their qualifications with respect to the latter, they assume a look half insolent and half indignant before answering, "They have lived 'mong osses all their lifes." The author was born in a house, and he has lived among houses till his hair is white, and age has more than began to tell upon his activity; but he does not, therefore, esteem himself qualified to comprehend all about those structures.

Still the suburban groom can dig in manure; can dibble holes into soft ground, and can drop seeds therein; can stick peas, and can top beans;

can tie up flowers, and can gather in fruit; so, to the height of his mistress's requirements, he is better than a person of loftier qualifications. If any garden produce should thrive, it is hailed as the evidence of Thomas's ability; should aught totally fail, the loss is attributed to the influence of the season. Thus credited for the good and shielded from the bad, it is scarcely cause for wonder should Thomas increase in fame, or soon grow to regard himself as perfection in the gardening capacity.

To recompense for the extra toil of servitude, the country groom takes his place at the kitchen table, and is thereby saved from many temptations to which the London outdoor domestic is necessarily exposed. He can occupy a chair before the kitchen fire when the day and the day's work has ended. In such places there is never any lack of conversation, while the conduct of master, of missus, and of the family is open to criticism. But the town groom knows nothing of such enjoyments; he may leave his horse, during the day, for the performance of domestic duties, but, after dark, it is essential to his master's peace of mind that the man should be thought located in the stable.

Within the last-named place he has a solitary room allotted him, which lies immediately under the slates and directly over the coach-house. If he has a family, his wife and children have to share the one small apartment, within which has to be performed the sleeping, the cooking, the eating, and the washing of the home clothes, to which, very frequently, is added the soiled linen of some patronizing neighbor. Within such a spacious residence, devoted to so many and to such opposite uses, a human being is expected to live and to thrive; to be healthy and to regard the place as his haven of domestic felicity.

Scientific investigation, however, has demonstrated that a London mews affords the most unwholesome abiding-place which is to be found within the limits of the metropolis. With only slates above to ward off the summer's parching heat, or to keep out the winter's biting frost; with the huge lungs below constantly vitiating the atmosphere of the place, it is no reason for surprise if the woman soon becomes a quarrelsome hag; if the children grow "fractious" imps; while the man learns to shun his home, and to practice arts which are needed to supply his extravagances elsewhere.

Undermine the bodily health, and assuredly the moral principle has a tendency to give way. Squalor is not friendly to the maintenance of probity. This fact is illustrated by nations as well as exemplified among individuals. The most necessitous are, as a tribe, always the most dishonest; but healthy poverty does not always indicate the keenest craving. The millionaire may be more greedy than the pauper. Yet when want arises from a loss of health, the desires generally increase as

the powers of enjoyment diminish. The sicklier the neighborhood, the more criminal are its inhabitants. Among a people emaciated by disease, the exemplification of virtue is an exception, as witness the fearful sins which invariably accompany the visitation of devastating epidemics.

When in town, the one groom's duties necessitate he should be up before the family have opened their eyes; his functions are nearly discharged when master's dinner table has been cleared. The morning he is supposed to occupy by attending to the horse. The evening he is imagined to pass in the bosom of his family, or, if single, in solitude; but always in his home over the stable. Before his employer's breakfast, and subsequently to the "Guv'nor's" evening repast, the man is, by an amiable fiction, conjectured to be laudably engaged; although, at such times, a sickly being and a disordered mind is freed from the restraint of authority.

The homes of too many London stable-men are such abodes as no life should reside in. The place may be crowded with the elements of happiness: in it may exist wife and children; but to it can be attached none of those characteristics which should hallow domesticity. A noxious vapor at all times prevails; this undermines the health, and gradually saps the soul's integrity. The impurity of the atmosphere induces a languor which almost compels a resort to stimulants. The man's evenings are his leisure hours; but what choice is there to him between the blazing fire, with the cheerful society of the tap-room, and the inadequacy of accommodation or the "fractiousness" of debility, that are the chief attractions of the room which is over the stable?

A genteel groom's wages range from one pound one to one pound ten shillings per week, together with outside clothes and an unwholesome lodging. The better class give the higher sum; but the vast majority of London grooms do not receive much more than the first amount. How, then, on so small a wage, can the men afford to visit so frequently the bar round the corner? In the first place, job masters, or men who let out carriage horses, retain persons whose duty it is to call round at the stable and see how the creatures are progressing. These men spend large sums in "treating" grooms; where an animal of a known delicate constitution is placed, their calls are proportionately numerous, and their "tips" are uniformly liberal.

A tradesman cannot look into a stable without inviting the presiding ruler of the place to take a "parting cup." There is no class of masculine servants who levy "black mail" so universally and so unmercifully as they of the London mews. The groom, therefore, does not pay for half of the much he swallows; and to liquidate his disbursements, he collects an ample revenue. Five per cent., over and above the perpetual

"treats" and gratuities, is the general tax on all the bills which his master pays.

Of the oats, many grooms claim a partner's share. On the services, all exert the larger right. Nay, even fashion, perverse and capricious to other people, seems to pander to the wishes of the stable. The animal delights in a flowing mane and tail, which not only beautify the creature, but serve to guide the motions, to fan the body, and to flap away the insects. The groom, however, regards the long horse hair as his property, and, to aid his views, there exists an instrument the use of which is to extract the equine adornment without exciting suspicion. Few gentlemen's horses appear with the mane or the tail in a natural condition, and genteel prejudice sneers at the profusion on which tribute has not been levied. Thus, while the quadruped lives, it breathes to enrich him who is engaged to tend the animal.

Nothing can enter the door on which an acknowledgment is not demanded, while nothing can leave the premises which is not regarded as the groom's lawful perquisite. The first maxim commences with the newly-purchased animal; the last terminated with the carcass which was drawn out of the stable.

For the servant's shortcoming, however, the master is to blame. It is neither morally right nor socially just to debase a man by exposing him, for the sake of convenience, to the certainty of enervation, while you place him in a situation of trust and of authority. Perhaps few of human kind are fitted to uprightly support the double responsibility; but, certainly, he commits a sin who invests another with such powers and then turns poor frailty into an exhausting atmosphere, removed from the possibility of supervision, and exposed to those temptations, while the employer's act has deprived his menial of the energy requisite for successful resistance.

The groom, for the convenience of the master, is forced to stand where man is not fit to be placed. He is despotic over the lives which cannot complain; he is the occupant of a home which is incompatible with health; he has property at his command, which it is impossible to check; with much idle time, he is surrounded by the examples and by the temptations of vice. His wages, however, are barely sufficient for the most rigid economy. The money he receives is certainly not fitted to satisfy the demands of the smallest extravagance. What justification can be urged in behalf of that educated gentleman who bribes an uneducated dependent to occupy so corruptive a position?

From the disinclination of employers to adequately discharge their duties, assuredly spring the many vices which beset the majority of London stables. In the country, where things are managed with less

of systematic formality, and where the groom lives with the servants of the family, the same corruptions do not prevail. Tradesmen, away from the metropolis, give Christmas-boxes; they likewise occasionally "treat" and "tip," but the custom has not degenerated into a tax, neither is the ruler of the stable paid five per cent. on the master's bills, nor is the man thus bribed to promote that extravagance which is detrimental to the interest he has engaged himself to serve.

These things cannot be amended with the present race of grooms. They are corrupt beyond all hope of reformation. With new material, a new system must be established. The servant should be accommodated with a wholesome home. Such might be cheaply built, but it ought not to be crowded into a corner of the horse's dwelling. It should be distinct from the stables, and ought to possess two windows, from which the horses might be overlooked. One should open from the sitting-room, the other from the sleeping-chamber. The wages at present paid may be ample for one man's food, but no money can satisfy the unhealthy gnawing generated by a contaminated domicile. To permit a human being to marry, when his earnings will not support a family; then to thrust wife and children into one small room, the air of which is vitiated, naturally leads to the want of integrity, which, properly regarded, is in its effects no more than the consequences of injustice rebounding to strike the wrong-doer.

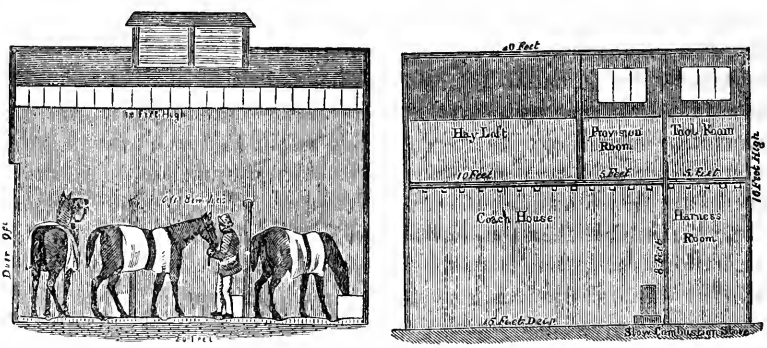
Against the proposal to erect distinct apartments will certainly be urged the expense which must be necessitated by such a measure. But when the year's accounts are settled, it might be found less costly to liquidate all needful charges than to feed the continual drain which the present custom creates. However, the wealthy have no right to urge their parsimony when the health of an inferior should be the sole consideration; but it ought to be recognized as a religious obligation to sacrifice personal gratifications rather than to purchase our pleasures by the corruption of those whom Providence has permitted to exist as our dependents. The police, who are empowered to enforce the observance of certain decencies in the lodging-houses of the poor, should also be authorized to watch, that the regulations necessary to the conservancy of health and life are not violated to propitiate the parsimony of the wealthy.

The last word of the foregoing sentence is employed to denote that species of possession which should appertain to all of those who, according to the well-known definition of the witness on Thurtell's trial, merit the term of "*respectable.*" To those establishments in which only one servant (generally without the assistance even of a stable-boy) is retained, the following remarks are chiefly directed. Where numerous

domestics are retained, over whom a stud groom or even a coachman presides, no specific rules are required to be laid down.

The larger stables are, for the most part, variously but admirably ordered. These sin only inasmuch as he who governs shares the ignorance which pervades all modern society. But the animal suffers from other causes in the simply genteel establishment. Two grooms can better attend even to six horses than one man can do all which a single quadruped requires. For instance: how can any domestic lead the creature to exercise, and, while he is thus employed, also freshen up the stable during the period of his absence?

Every groom should be allowed a lad, for the above reason. Where only one animal is kept, few metropolitan stables are fit abodes for either man or horse. These are both retained for the labor each can perform; but, to exert this labor, a healthy residence is in both cases of equal importance. To show the reformation which in the great majority of London stables is imperative, the next engraving is introduced; and it is seriously recommended to the consideration of the public, not as a luxury or as an appendage to affluence, but as an alteration which would be favorable to absolute economy.



A MODERN STABLE, AS IT MAY BE ADAPTED AND IMPROVED.

The above plan supposes the entire space occupied by a London stable to be appropriated to its legitimate purpose. Within the building no "groom's room" is crowded. The interior of the horse's apartment extends "clear up" to the roof. Such a height may, when contrasted with existing places of a like description, appear enormous; but before that opinion can be established, those purposes to which the house is devoted have to be considered.

A stable into which four inconvenient stalls were crowded may bo converted into a receptacle for three small loose boxes, each measuring

six feet eight inches broad by sixteen feet deep. The divisions are similar to those alluded to in the previous chapter; but the first two boxes must be passed through before the third can be reached. There is no gangway, and the door opens into the first compartment, through one box being the only passage to the others. This is inconvenient; for it necessitates that when a quadruped has to be taken out, all the horses between it and the entrance should be previously haltered and fastened up to the farthest side, or to where the manger was originally erected.

The hay-loft, instead of being directly over the horses, is separated from the animals by a stout wall. This arrangement obliges that the provender should be fetched as it is wanted; but it also provides that the food shall not be contaminated before it is offered to the quadrupeds. The vehicle is likewise removed from the possibility of soil; and the coach-house contains a stove, of the kind called "slow-consuming." Connected with this fire is a boiler, from which hot water pipes diverge. Above the coach-house, the space is divided into hay-loft, etc.

The annual cost of a coach-house and stable in the best parts of London is thirty pounds. A house of the proposed dimensions, where the rent is highest, would necessitate an annual outlay of fifteen pounds extra. Such an amount might be easily saved from the present expenditure, while the horses would be better lodged, and last the longer; the carriage would be better housed, and not require renovation so frequently; the food would be kept sweeter, and not be as often wasted as eaten; the servant would possess a healthy home; while the master could not but gain, by the better strength and amended feelings of his dependents.

But before such changes can be witnessed, gentlemen must have released their minds from the fetters of fashionable custom. The prevailing folly, which insists that every groom shall be a stunted affectation, is a stain upon the boasted enlightenment of the present period. It is true, a light weight is essential in a jockey; but men of station should be above aping those necessities which the trainer laments being obliged to obey.

To ride, is the last qualification required in most grooms, and it is one which few of the existing deformities can properly perform. The horses, when exercised, should not be mounted, but should be led; and height is an advantage when this is being performed. The animals are likewise more readily dressed by a tall man; for many a quadruped is rendered restive by the mingled fuss and spite vented on their charges by the modern diminutives.

There is, however, one groom, whose weight should not much exceed

eleven stone. This is the pad groom, whose peculiar duty it is to ride after his master or mistress, when either indulge in equestrian exercise. The man, being a personal servant, should be active and attentive. When on the road, he should follow his employer at such a distance as will prevent him from overhearing conversation, and will render it impossible for the horse he is riding to challenge or to excite the animal on which his superior is mounted. At the same time, he should be sufficiently close to observe the slightest action of his employer; and, so soon as his master shall stop, he ought to appear on the off side, ready to hold the rein while the gentleman dismounts.

The nag is, however, at the present time more the property of the servant than of the proprietor. It is more ridden by other persons than by its nominal master. The groom rides to exercise; the smith rides from the forge. When a message is sent, the servant never walks; if a parcel has to be fetched or left, the man always carries it upon another's back than his own. In short, the steed has to work whenever the hired domestic is employed beyond the walls of the mansion.

Now, to work the master's horses is no part of his duties who is engaged to attend upon the inhabitants of his master's stables. It may be more pleasant to ride; but which, does he imagine, would prove most advantageous to the animals? To him whose province it is to "look after" the quadrupeds, their welfare ought to be more studied than his personal convenience. There is an accepted maxim about "serving two masters;" but this is that which all horses have to do; and very often the tyrant of the mews is far more exacting than the ruler of the mansion. People, before they complain of the expense attendant upon keeping a small stud, should ponder over the foregoing facts; for where two duties have to be simultaneously discharged, we may anticipate that health will occasionally fail, and "accidents" will frequently occur.

Gentlemen are not safe, if they mount horses which have not received the morning's exercise. Grooms are seldom to be absolutely depended on for the invariable discharge of early duties. Hence arise the majority of those terrible misfortunes which condemn wide circles to adopt sad-colored garments. When the master is thrown, the servant's neglect is too frequently the cause of the supposed "accident." Therefore, where saddles are much employed, the stable attendant should never be free from all supervision during the performance of his essential duties.

After long confinement within a tainted atmosphere, the pure air seems to intoxicate the inhabitants of the stable. People, subsequent to severe sickness, generally suffer when first leaving the house. But a human chamber is kept ventilated, and the patient commonly sits near an open window before venturing abroad. The equine apartment is

always foul, and during the night it generally reeks with impurity. The food and the drink of the animal are simple in the extreme. Its limbs, while in the stall, are motionless. No wonder, therefore, if sudden action and the inhalation of untainted atmosphere act in a strange manner upon a sensitive and delicately-organized body. The creature's senses are not to be measured by human perceptions; neither are its acts to be accounted for by appealing to the conduct of its master. We must reason temperately, and accept the mute behavior as strongest evidence. Then, all horsemen must have remarked the excited caperings which signalize the first release of the horse from its unwholesome abode. During such a time the saddle cannot be a desirable seat; neither can we assert how soon the quadruped is free from its excitement, nor what circumstances may induce a renewal of the extraordinary exhibition.

The next thing to be desired is, that those persons who do not employ a stud groom should find some one to represent this important functionary. Where groom and coachman are kept, it is easy to invest the coachman with authority; for the servant is always a severe task-master to his fellow. When groom and coachman are united, the proprietor should pay more than visits of ceremony, at regular periods, to his stables.

Grooms, however, dislike to be overlooked. They constantly assert a stable is "no place for a gentleman;" and aping outward respect, they manage to render this opinion influential. When the proprietor appears in the stable, all work ceases. The groom stiffens with the most rigid propriety. Under a pretense of duty, he dogs his employer's steps. He answers in monosyllables, and in a low voice. The face grows unpleasant in the blankness of its expression. He will not talk; he will not work; he will only watch his master, with an air partly of offense, partly of mystery. The gentleman soon grows uncomfortable; and there is small cause for surprise should the proprietor, having been thus treated, be in no hurry to repeat the visit.

The stable is then relinquished entirely to the servant. There, the man fears no eye observing his actions; and he knows there is no tongue to report his behavior. Before an uneducated individual is thus left in unchecked authority, it were well to think if his surroundings are of a character which neither passion nor malice could convert into instruments of danger.

The attention should be seriously given to the banishment of steel from every tool employed about the horses. Those who are not in the secrets of such matters cannot imagine how many injuries, which are reported and accepted as "accidents," are really wounds willfully inflicted during moments of irritation.

An instant's reflection will, however, convince the least credulous reader of the feasibility of the above assertion. Stable-men usually pass their evenings at an adjacent public house. After a night's endeavor to sleep in a foul atmosphere, their duties oblige them to be early risers. They enter the stable, having their stomach upset; with their temper consequently unhinged, and in no mood to attend upon the wants of an unsympathetic animal. At such moments the iron tools must be employed, and the lightest of these things can inflict the most terrible injuries. The stable fork is commonly spoken of as a dangerous weapon. The man may be removing the bed with this implement, when he mutters, "kim ovare." The horse does not hear or does not understand the command. The order is shouted out in the topmost key of an angry voice. Fear incapacitates the quadruped for obedience. The arm is raised before the creature has recovered; and a blow from a pitchfork will leave a fearful mark behind.

"KIM OVARE."

To avoid such "accidents," banish the use of metal from within the stable. All requisite implements can be made of horn or of hard wood.

To scrape the perspiration off the body of a horse, a slip of whalebone will leave nothing to be desired; to toss up or to carry away thirty-six pounds of loose straw, tough wood may answer as well as iron. The curry-comb will scrape enough, if composed of horn; although, save in exceptional cases, and under veterinary advice, such an implement of torture is better abolished, for it generates the scurf which its constant use is thought to remove. The man can work longer and accomplish more with a hair cloth, a brush, and a whisk. Should the skin appear dry or scurfy, forbear to irritate it with the curry-comb. Moisten it the night before with the following preparation; on the ensuing morning dress the animal with the utmost gentleness.

Preparation for a scurfy skin.

Animal glycerin	One part.
Rose-water	Two parts.

Mix.

A small teacupful of the above should be sufficient to moisten the entire body of a horse; for the skin, not the hair, requires merely to be lightly damped with a small bit of sponge. To execute this properly occupies considerable time; it cannot be quickly performed. But if this is done occasionally, the integument will continue soft; for the effect of glycerin, as a wash for the skin, cannot possibly be too much confided in. Should the smell of the animal glycerin prove offensive, the property may be overcome by adding to the mixture a sufficiency of any cheap essential oil. To harness horses, however, animal glycerin is not so powerful as to necessitate any corrective.

A further benefit will be secured by the banishment of the curry-comb. Those noisy and unseemly contests, which are provoked every morning, will no longer startle a quiet neighborhood. The shouts of "stand still," and the blows with which these orders were accompanied, will cease to be heard; for the writhing which elicited both will terminate when the curry-comb has been abolished. Grooms, by the gentler behavior of their charges, may be tutored to abandon those very emphatic expletives that sound oddly when addressed to the animal, which is the most patient and the most obedient of all creation. Mild words commonly accompany gentle actions; under better regulations, man and horse may learn ultimately to cherish for each other those emotions natural to two living beings that are thrown so much into each other's society.

Tying the horse's head high up to a wall—putting on the necklace—using the muzzle, or employing the arm-strap—are but artifices which enable a groom to employ a needless instrument with unnecessary se

verity. Animals with tender hides suffer so acutely under this affliction, that lamentable consequences have been caused by that desperation which the torture has induced. It is better to adopt gentler means, when these are more certain and more effectual than any restraints can possibly be rendered, while the curry-comb is retained.

Having so far changed the habits of the stable as to prevent the groom from riding on all occasions—having brought the man to believe that, where strength is not required, articles made of wood or of horn are as useful as tools manufactured out of iron—having convinced him of the folly exemplified by the employment of such very energetic language to an animal,—there yet remains something more to be accomplished. Small respect is evinced by sullen demeanor. The man, having acknowledged the entrance of his master, should proceed with his ordinary work, until the voice of his employer calls his attention from it, or desires his presence elsewhere. This the domestic ought to comprehend and to acknowledge before he is required to exemplify it by his actions. The servant must be also taught to remove pails, cloths, or instruments from the stable the instant such articles are no longer employed. Thus those unsightly objects, as stopping-box, dirty rags, soiled bottles, forks, brooms, sticks, etc., which now usually litter such places, would be totally banished into obscurity.

These things should never be suffered to remain after they are no longer needed. Grooms often acquire a habit of striking their charges; this practice is likely to be encouraged by the means of chastisement being always ready to the hand. Insist that the interior be kept invariably clear; that all tools are brought into the stable as required, and are carried thence when no longer employed. Jars, bottles, etc. should never be allowed to accumulate, under a pretense that such refuse may prove useful on some future occasion, or may hereafter be sold as a legitimate perquisite. Forbid the insertion of nails or hooks into the walls; for such projections have occasioned fearful rents in a horse's body; and so have the sharp edges formed by the building, whether these are of brick, of wood, or of iron: all should be very carefully rounded, for this last precaution being unheeded has induced lamentable injuries.

In a properly-regulated stable, water should be abundant, and ought to be freely employed. Grooms dislike this. At present, even books are written which, as an innovation upon confirmed habits, seriously propose that the flooring of stalls should be washed once a week. The author recommends that the loose boxes should be thoroughly flooded every morning, and that, while this is done, they also should be well scrubbed with a stiff birch broom. The pavement ought to look clean,

and the stable should be perfectly free from any taint. Many ignorant or idle persons assert dirt to be preservative of health; but if the reader will experiment with a little cleanliness, he may afterward be trusted to decide upon the merit of the opposite extreme. While the grooms are walking the horses the stable-boys can cleanse the boxes, and these places being warmed during winter, there is no peril to be anticipated from excess of moisture, though inconvenience may be experienced in consequence of its deficiency.

The stable thus regulated is not only a safer, but it is a more healthful abode for horses. Another advantage is gained by keeping the building perfectly vacant—no excuse is then ever ready to justify the intrusion of idlers. When groom and horses reside under one roof, such an order cannot be insisted upon; but when each has a distinct home, the man's visitors evidently have no business within the master's offices. Vulgar people are apt to become excited by the presence of numbers, and to illustrate their dexterity upon the quadrupeds, which cannot comprehend that action to be intended for play, when their part in the amusement generally calls on the creatures to endure. Moreover, grooms are fond of dogs; some of their pets are remarkable for ferocity. Nor does the educated savagery of the canine species form the only objection to their presence; these animals have a tendency to exhibit a fearful disease, to inoculation from which the horse is very susceptible.

Cleanliness, quietude, and regularity should prevail in every stable. Where one horse alone is kept, the groom should be placed over a lad; for a stable cannot be well managed by one pair of hands. The door of the building should be unlocked punctually at six o'clock. The horse should be inspected, to see that no mishap has occurred during the night; after which the animal, at present, receives the earliest feed of corn, mixed with two pounds of clover hay cut into chaff, the whole having been steamed or macerated. While this is being consumed, the night clothes should be removed; the unsoiled straw divided from the soiled bedding; the clothes should be spread out to become perfectly dry; the exposed body of the animal should be again thoroughly inspected; stopping (when used) taken from the feet; the water renewed; the feet looked to; the clinches of the nails, which fasten on the shoes, should be felt; the unsoiled bed heaped into one corner of the box; the day clothes put on; and those things generally attended to which are required to give the place a smart appearance.

Seven o'clock.—The day clothes are either allowed to remain, are changed for lighter sheets, or are entirely removed, according to the weather: the horse is bridled, and the animal is led forth to one hour's exercise; the helper or the stable-boy throws every outlet open; puts

the bedding out to dry, if requisite; washes the pavement; sluices the drains; cleans the manger; allows a full stream of water to flow through the troughs; getting the building sweet and ready by the expiration of the hour.

This morning exercise is, in London, often neglected; but it should always be strictly insisted on. Perhaps it were better, were the animals at once conducted from the place in which they slept and led through the air upon the first opening of the doors: after which they could return to sweetened apartments, with bodies refreshed and appetites stimulated by the morning breeze. Moreover, it is better to divide the exercise and the work by as long a period as possible; and the food must be more nutritive and wholesome when eaten in a clean apartment, than when devoured in a chamber reeking with the fumes of twelve hours' imprisonment. No fear need be felt concerning the delay, as the exercise is no more to the horse than is the early walk before breakfast, in which so many gentlemen indulge with advantage to their constitutions. During winter, however, the morning exercise is often delayed; and then is seldom given. The only legitimate excuse for the absence of such a necessity to health, is the presence of a severe frost. Otherwise, winter and summer, the early walk should never be neglected.

Eight o'clock. — The horse is brought in, and, being stripped, the grooming commences before the body cools. This is performed outside in very warm weather, but within the stable when the day is either cold or wet. Hair cloth, dandy and water-brush; hay wisp, sponge and comb, are only employed in this operation. The hair cloth is used, save in cases of absolute necessity, instead of a curry-comb: the other things are employed after the manner in which grooms are accustomed to use them.

The groom should always cleanse the body in the line of the hair. To ruffle this, causes annoyance to the animal, and interferes with the beauty of its appearance. The daily renovation ought to commence with the head. On this part more time and patience should be lavished than is usually bestowed. The groom is not perfect in his duty until his office affords pleasure to the creature on which he operates. The ears are smoothed and made glossy with the hand. Then the fore quarters are dressed; afterward the animal is turned round, and the other parts are attended to: but one agent is always fully used before the next is introduced. The openings having been sponged and the long hair combed, the toilet is then finished. This being done, the groom sees about his harness, etc., till nine o'clock.

To ascertain whether an animal has been properly groomed, inspect the roots of the mane. Should scurf appear, set the servant to remove

it. Also finger the body, which should communicate no thick and greasy soil to the hand. Grooms will assert it is impossible to prevent these effects; but if their labor cannot clear the coat, they must be either very ignorant or very idle. It is useless to dispute with an inferior. Tell him you insist upon your desires being accomplished, and you will only retain the man who *can* effect it.

Nine o'clock.—The horse receives another feed, consisting of two and a half pounds of soaked peas or of soaked tares, one quart of soaked and crushed barley, with three pounds of clover hay cut into chaff, and also steeped: all soil is removed from the boxes; the groom then returns to finish his harness. Every piece is unbuckled and cleaned separately, and all metal articles polished, after the leather has been overlooked and renovated.

Ten o'clock.—The man goes to the house for the day's orders: these obtained, he returns to the stable; he finishes the harness and he cleans the carriage. The cushions should be removed and daily aired: in hot weather, in the sun; in wet or during cold seasons, at the fire. This is done before the vehicle itself is attended to.

Twelve o'clock.—The horse has another feed, composed of half a gallon of crushed and macerated oats, with two pounds of properly-prepared pea or bean chaff.

Two o'clock.—The horse, when not required by the master or mistress, is led out for two hours' exercise. When its services are needed, the eyes, nostrils, etc. are sponged over; the mane and tail combed out; the coat is dried and smoothed; the exterior of the hoofs slightly glycerined; the feet and shoes specially noticed; then the saddle or harness is put on, and the animal is walked, not hurried, round to the front door. If the quadruped's services are not required, the last directions are unheeded.

Four or five o'clock.—When the horse returns, either from abroad or from exercise, the bed should have been littered down, and the body should be slightly dressed; the night clothes should be ready; the animal is fed with four pounds of Egyptian beans, soaked and mingled with half a peck of upland hay chaff. When the horse is out late, the groom and the stable-boy should be up to receive it. Further instructions will, hereafter, be given concerning the treatment of the animal's possible condition when it is brought home at unseasonable hours.

At dusk.—A small light is ignited, and placed in a lantern.

At ten o'clock.—The horse receives the last meal, which consists of the same ingredients as the twelve o'clock feed.

In the foregoing directions, only those things have been mentioned which require to be executed with regularity. Many small acts are, of

course, not named. These are done between the more important duties. But, as a general division of the labor, a good groom should always make the horse the primary consideration. Thus, the fore part of the day is entirely spent upon the quadruped, upon the harness, and upon the vehicle; while the afternoon (where such an arrangement be possible) is devoted to the employer or to the stable, and to those small matters which always demand attention.

A better division of the feeding is, to withhold the nine o'clock portion, and to give it at two o'clock in the early morning; for as the horse delights in comparative darkness, and is by nature formed to be hungry and active after sunset, man certainly would gain by following the plan which best accords with the animal's instinct. Thus horses, being observed when in the field, will invariably be seen either resting or sleeping during the hot hours of the afternoon. The cool of the evening, consequently, would be a better time for enforcing exercise than the period when, according to existing customs, it is generally administered. In private establishments, however, many of the latter proposals would be attended with inconvenience; but the author can imagine no household in which the ten o'clock feed and the evening exercise might not be undertaken, and, in several public companies, everything here suggested could be accomplished. The morning's exercise should likewise be given before the day becomes hot or the light is fully confirmed. Then the quadruped is braced by the spirit of the hour, not rendered miserable by the heat and annoyed by the stings of innumerable insects.

The only peculiarity in the above regulations consists in the length of time over which the feeding and the exercising are distributed. The ordinary day of most stables lasts only eleven or twelve hours. The author makes the period to extend over sixteen hours. His reasons for so doing are twofold: in the first place, the horse is by nature formed to enjoy the night much more than it is made capable of roaming during the day; in the second place, the author never dissected the carcass of an aged animal without finding the capacity of the stomach morbidly enlarged, and the walls of the viscus rendered dangerously thin by repeated distention. The manner in which the small digestive bag of the quadruped must be overloaded, by the usual plan of cramming five full meals into twelve hours, accounts for the latter characteristic, and also explains why indigestion should rank among the most fearful and the commonest malady which attends upon domestication.

The curry-comb is abolished; but the generality of grooms also require to be cautioned concerning the use of the wisp and the brush. The first article is generally brought down upon the sides with a succession of heavy blows. Now, beating is not cleaning; neither is one act

necessary to the proper performance of the other. The brush is often applied so quickly and sharply as to cause the animal to shrink. The groom would not admire being himself dressed according to such a method. The hair cloth should be used to remove impurities; the brush is employed to expel loose particles, and to smooth any hair which the previous process may have disturbed or roughened; the wisp is intended to polish the coat. Any violence over and above that requisite to fulfill such intentions, is needless cruelty, and should, when detected, be immediately checked.

The more important portion of a groom's duty, however, concerns the treatment necessary for a wet, a tired, a dirty, or a heated horse. Most servants are successful in dressing an animal when the stable is entered in the morning, but few comprehend how to groom a steed in any of the conditions which have just been named; and, of that number, fewer still care to stay out of their beds to cleanse the soiled coats of the creatures intrusted to their custody.

Clipping and singeing are processes which all stable-men greatly admire. However, before the grounds of their admiration are criticised, it may be as well to reason a little upon what appears to be a growing custom. British horses are deprived of the thick, warm covering which nature bestows only in the winter. It certainly does sound somewhat paradoxical, when it is stated that the English allow their quadrupeds to run about in full costume during the summer's heat, but take off every protection as wet, snow, and frost approach. Certainly, if extra covering is requisite at any period, man, by great-coats, cloaks, mantles, overshoes, respirators, boas and comforters, has declared that Christmas is the time for additional warm clothing. But the groom protests it is impossible to keep a wintry equine garment dry; he says that when the creature has been made comfortable the previous evening, the coat is often found to be quite wet on the following morning.

Still, in some very cold climates, it is not unusual to wet the garments, for the purpose of confining the animal heat, or of preventing cuticular evaporation; therefore, the moisture of the skin may be ordained with a benevolent design. But granting all the groom can object to wintry perspirations, the body which perspires is confined in a stable, and an impure atmosphere can occasion a faintness which shall provoke a copious cuticular emission. At all events, man has, in his treatment of the horse, made such egregious blunders that he ought to be careful how he presumes, in future, to differ from the ordinances of nature.

To illustrate the effects produced by a thick, wet covering, and by a thin, wet envelope, let the author narrate the result of a very simple experiment, which the reader may without much trouble institute for him-

self. Obtain two bottles. Wrap one closely in several layers of calico; around the other fix only a single, tightly-fitting covering of the same fabric. Saturate the cloths of both bottles with water; also fill the interior of each with the same liquid. Renew the moisture to the two coverings as either becomes dry. After twelve hours, test the temperatures of the contents poured from either bottle. That from the thickly-covered (which may remain wet) vessel will be unchanged, or warmer for its confinement; that contained within the thinly-protected inclosure (which possibly shall be quite dry) will be cold, very cold—so cold, that in warm climates water is thus rendered a refreshing draught. Nay, the hotter the medium to which the bottles have been exposed, the colder will be the temperature of the thinly-coated liquid.

Now, the stable is always a heated medium. The animal with a thick coat is represented by the vessel with a thick incasement, the contents of which are not chilled by the moisture which saturates its envelope. The clipped steed is represented by the bottle thinly enfolded, the liquid within which became cold. But, it may be urged, the clipped horse is never moist. Then perspiration must be checked, and fever must be present; for, during health, the pores of the skin are never inactive. Where the coat is removed, superficial perspiration, accompanied with constant evaporation, must always be taking place. Where the hair is thick, moisture naturally accumulates; because the covering prevents superficial evaporation, and thereby checks the operating cause of internal frigidity.

For the reasons explained by the above experiment, horses which have been clipped or singed are thereby rendered more susceptible to many terrible disorders. Any internal organ may be acutely attacked; because the perspiration has, by exposure of the skin, been thrown back upon the system. Numerous hunters (which animals are always clipped) fail, at the beginning of the season, from this cause. Nor can the author comprehend the purpose served by the prevailing custom, excepting the propitiation of a servant's humor. It is said, the animal moves so much more nimbly after the long coat has been removed. This may be the fact, though the author has hitherto seen no such marked change follow the operation as will allow him to deliberately corroborate the general assertion.

Moreover, let the servant, when he notices the animals for the first time in the morning, observe the breathing of the quadrupeds. The building has been closely shut for the entire night, and the impure atmosphere will necessarily excite the respiration. Now, it may not be exactly in accordance with the groom's notions, but scientific men have long known the skin and the lungs to be joined in one and the same

function. Then, what right has ignorance to expect one to be idle when the other is oppressed?

Perspiration only implies cuticular activity. It is a healthy action; the emission of the horse is only an effort of nature to cast off those impurities which man obliges his prisoner to inhale. The clipped animal must also perspire if it also inhabit the building, and remain free from disease. The skin must equally exhale, as a law of its existence; but the hair being short, and the surface of the body exposed, the heated medium in which the creature stands may cause the moisture to evaporate as rapidly as it is emitted. Still, all this will not satisfy the stableman. It is not only the wetness of the coat which he dreads, but it is the presence of dirt that he abominates. Long hair attracts and protects mud, which, however, is easily removed from any substance, after it has been allowed to yield up its component moisture.

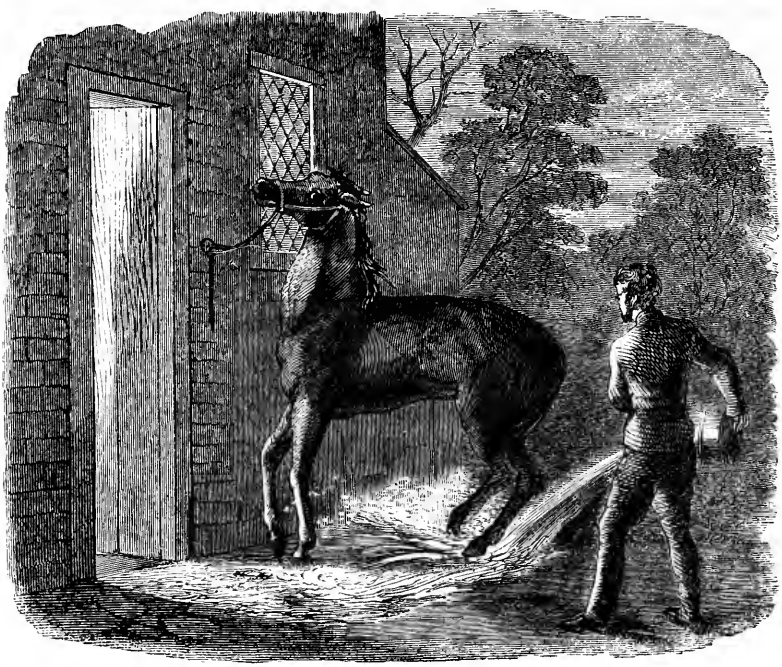
Viewing the insensible perspiration as an established fact, the prevailing customs are not unattended with danger. The advent of the summer's covering is delayed, and the system seems to suffer greatly during the subsequent period of changing the coat. The pace flags; the spirits fail; and the quadruped becomes more susceptible to disease, at a time of year when equine disorders are commonly more general and more virulent.

Yet, it may be urged, that in the winter season the roads are far dirtier, and the long coat is so much more retentive and more difficult to cleanse. Here again the argument returns to the groom, and to his distaste for his avocation. It is true, a long-haired heel should not be made clean after the usual fashion. The man should not take the horse outside into the night air, and should not tie its head to the stable walls. He should not dash a pail or two of cold water over the soiled and heated members; and should not lead the horse back to its stall, retiring to bed with a comfortable conviction that he has done his duty.

To fling about water necessitates little trouble, therefore it is a favorite practice with all stable attendants. Whether it meets with equal favor from the life whose heels have to sustain the deluge, no one has, hitherto, been weak enough to inquire. That nature intentionally clothed the horse's heels with long hair, to keep lowly-organized parts warm and free from dust, is a fact neither thought of nor cared about. The man specially retained to look after the quadrupeds cuts away the provision which was instituted by the Source of all mercy; then applies cold water to the organs which Wisdom saw reason to shelter, leaving the members to chill and chap, while he retires to his repose.

The animal, with its dripping heels, is hastily fastened in a stall. The clipped legs of a horse are admirably adapted to exemplify the effects of

evaporation. That portion of the body where the circulation is most feeble has to endure the effects of the process which can generate cold, even during the extremity of the summer's heat. Cracked heels, grease, etc. (see "Illustrated Horse Doctor") are the immediate results; and the master who makes the welfare of his steed subservient to the idle prejudices of his groom, is fitly punished in the lengthened period of his animal's compulsory idleness, appropriately finished by the payment of a long bill to the veterinary surgeon.



THE USUAL METHOD OF CLEANSING A HORSE'S HEELS.

The author seriously proposes that all horses' legs should be permitted to retain the adornments which were sent by the bounty of nature for the comfort of her creatures. The clipped or singed horse is a deformity: the color is unnatural: the coat is dull and stubborn, looking most unlike that polished surface which is native to the beautiful quadruped. Moreover, those who live in a temperate climate should be content to forego certain elegances which are natural to warmer regions: or, if they will have tropical loveliness, they should encourage it by those means which enable oranges to ripen in England, and not descend to

meannesses which may expose their desires, but can deceive no one,—not even the most ignorant in horse flesh.

Supposing a horse to be brought home with unclipped but with soiled heels; with the lower part of the abdomen covered by dirt, and the coat drenched with rain:—the animal is led into the stable; the bridle and saddle are removed; the body is first quickly scraped; then it is rubbed over with a few dry wisps; afterward it is lightly hooded and covered with an ample sheet. The master, who has hastily taken off his boots and changed so much of his clothing as was wet, now returns, bringing a quart of warm beer in a pudding dish, and he remains to see the quadruped drain the draught.

GIVING A HORSE A QUART OF MALT LIQUOR.

Horses soon learn to drink and to enjoy malt liquor. Were such stimulants equally at their command, certainly the animal would excel its superiors in habits of intoxication. The majority of quadrupeds may, with the first few draughts, require a little coaxing; but the primary disinclination overcome, the craving for such an indulgence seems to be immoderate. An occasional stimulant is, however, very useful in the stable. It revives exhaustion, and restores vigor to the circulation. The timely administration of a quart of fermented liquor to a jaded steed has often prevented those evils which usually attend upon bodily prostration.

The drink being swallowed, the sheet is taken off, and the body made thoroughly dry with wisps and cloths. The lad again employs the scraper: the man with a cloth dries the eyes, channel between the thighs, chest and abdomen, always performing his duties with gentleness, and discarding the cloth for a hay wisp, where the hair is thick, or wherever the water appears to have lodged. While this is doing, the proprietor should comb out the tail, the forelock, and the mane; he should also discharge those many little offices which are not laborious, but which add greatly to the comfort of a tired animal. Other portions of this matter will be treated of in another part of the present article,—such portions being, the food proper subsequent to fatigue, and the right method of cleaning the heels. However, it may be necessary to observe in this place that before the quadruped is left for the night, the sheet should be removed, and the usual night rug put on to the body.

CLEANSING AN EXHAUSTED HORSE.

When a horse is brought in, covered with perspiration, it is led at once into the stable; master, man, and boy should join in its purification. The lad takes the scraper, and, beginning at the quarters, hastily presses out the excess of moisture; while the groom procures a pail of cold and a pail of warm water. All being ready, the master not having left the stable, the lad brings forth a dish of diluted soap, (half a pound of soap whisked about till it has dissolved in one quart of water,) and, dipping his right hand in this preparation, he smears it all over the body. So fast as the youth rubs the soap into the hair, the groom washes it off,

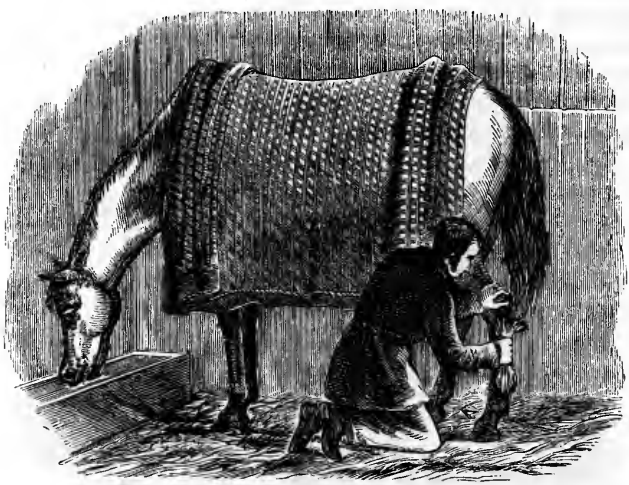
by pouring warm water over the place. The warm water carries away the soap, and with it are also removed all the impurities natural to the soiled condition of the skin.

After the groom comes the master, who pours upon the body, already washed with warm fluid, a stream of cold water from the rose of a watering-pot. The intention of the process may be thus explained. The dissolved soap and the warm water are simply used to cleanse the body; having done this, the cold water is applied merely to close the pores of the skin, and to invigorate the system which exertion had debilitated.

CLEANSING AND COOLING A TIRED HORSE.

This accomplished, all hands present, after the manner already directed, should set to work: scraping, rubbing, combing, and using their utmost endeavors to dry the animal as quickly as possible. The horse is then lightly hooded and clothed. Where there exists a covered way, the animal should be run up and down the protected road six or seven times; then returned to the stable. Should there be no ambulatory connected with the premises, the friction ought to be continued longer than otherwise, so that the surface of the skin may be gently warmed, and the circulation slightly quickened, that being all the little amount of motion which was ordered could accomplish.

With regard to the legs and feet of the animal, these parts are so much exposed that to them the same danger does not attend the presence of damp as is commonly dreaded in the human subject. The water with which the body has been drenched will naturally flow down the legs, and remove from them no inconsiderable quantity of soil. All, however, having been performed as directed, the groom takes up each hoof and cleans it thoroughly out with a picker and a hard brush. Then he goes upon his knees; with several straw wisps, he removes so much dirt and moisture as will yield to friction. This done, he brushes over the outer wall of the horn with glycerin, and rolls bandages round the legs.



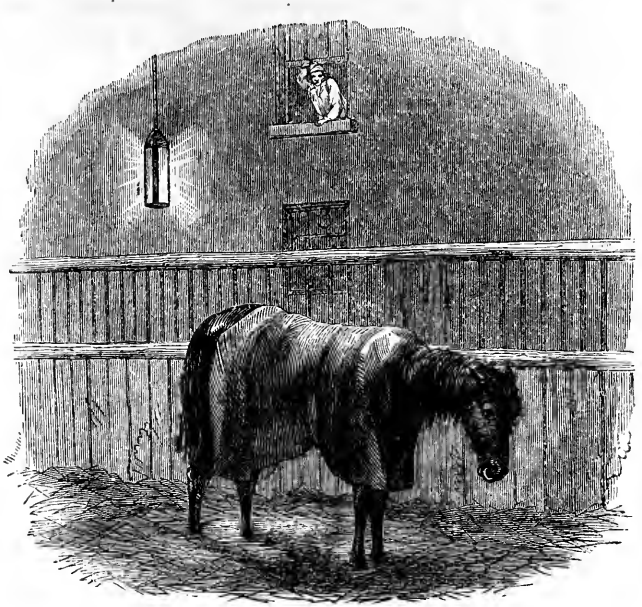
DRYING THE HEELS.

In the above illustration, the size of the horse cloth cannot otherwise than have appeared strange to the reader. But things as large, if not of a greater magnitude, should be in every stable—not for general use, but for special occasions. The ordinary rug merely covers the spine, not doing so much toward keeping warm the carcass of a horse as would be effected by a Guernsey jacket upon the body of a man. Yet, who would think of employing the last article as a sole envelope for a cold and fatigued traveler? This, however, is all modern custom sanctions for the comfort of a tired and exhausted steed! The folly of so inadequate a provision is apparent, and the necessity of the innovation suggested by the last engraving must be obvious to all who will condescend to think seriously on the subject.

While the legs are being attended to, the supper may also be before the horse. The meal, however, should not be of the full quantity or of

a heavy nature. The stomach sympathizes with the general exhaustion of the body; the digestion is too much weakened to appropriate its ordinary nutriment. For a steed whose feeding capabilities are not hearty, a little bread and salt, offered from the hand of its human favorite, will frequently be eaten. Half of a half quartern loaf, lightly seasoned, commonly will be gratefully accepted, if given in the manner directed. Often, however, the craving is limited to liquids, all solid provender being refused.

The animal should not be annoyed by any well-intentioned coaxing to eat, when nature commands it to abstain. The inclination of the quadruped should, at this time, always be respected; for a tired steed stands upon the borders of inflammation, and in proportion to the value of the quadruped invariably is the danger of an attack. Hard-worked horses often want the stamina which enables nature to resist the effects of exhaustion. The bread, if not accepted, should be immediately withdrawn, and a pail of well and smoothly made gruel, with which the meal was to have concluded, be alone presented. All other food should be removed, and the animal left, supperless, to its repose.



GET UP!

If the gruel is rejected, take it away; place it in a cool situation, and it may be swallowed with avidity on the following morning. If allowed

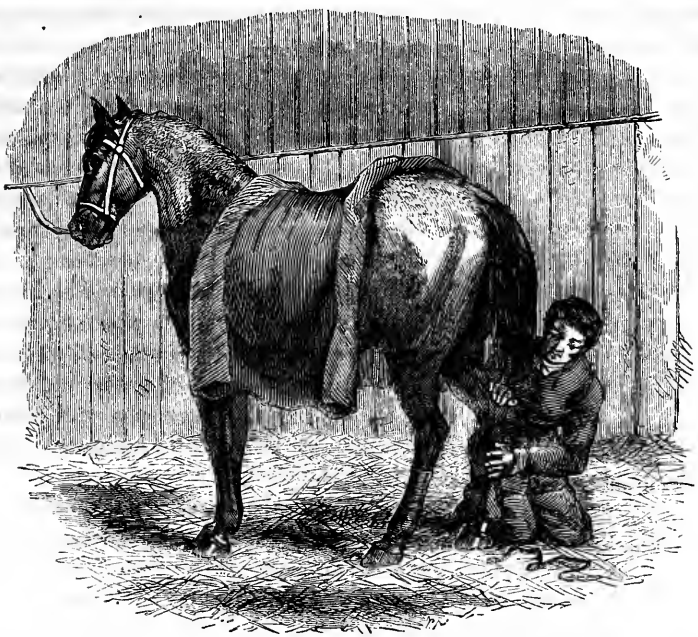
to remain, the animal will breathe upon it, and grow to distaste the nourishment. Suffer the horse to take the rest which a disinclination to feed will have informed you is nature's primary requirement. Only, order the groom once or twice to peep at the nag through the window which overlooks the stable. Should the creature have laid down, the man may retire to his bed, convinced that all his well; but should the animal, upon the second inspection, be beheld standing up, no time must be lost. The servant ought to dress himself, to apprise his master, and to descend to the stable; for this attitude, being long maintained, is among the earliest and surest indications that disease has commenced.

A good feeder may simply require an allowance of bruised beans and corn, to be well boiled in a sufficiency of water, and, before being presented as two meals, quite cold. No hay, but a little bran or chaff should accompany the mess, as the desire is to nourish the system without overloading the stomach. Should, however, this potion be refused, it is soon converted into gruel, by stirring to it a sufficiency of water and placing it on the fire; afterward by pouring the liquid through a strainer, the husks are readily separated. It is but seldom that full feeders are thus far exhausted. A voracious appetite is commonly united to so much slothfulness of body as saves the horse from the aggravated effects of absolute muscular and nervous prostration.

On the following morning—supposing no mishap to have occurred—when the time arrives to groom the horse, the bandages should be taken off, and, as each wrapper is removed, the leg ought to be dressed. Firstly, the member should be well rubbed with several wisps of straw. The more apparent dirt being removed, the part should be further cleansed by application of the hand. After this the hair should be combed; then again ruffled with the hand—these processes being terminated by a thorough application of the dry water brush. This operation should be repeated upon each leg, no hurry being indulged in the performance of this operation; but water should not be applied to the heels, without the special leave of the proprietor having been obtained. The case should be very marked before such permission is accorded; for wet to the heel is the cause of numerous troublesome affections.

Most grooms are convinced of the propriety of walking the horse up and down when the creature has returned, and perspiration has moistened the winter's coat. The author has, elsewhere, illustrated the folly of this practice. The body soon chills, upon a change of action; notwithstanding a most conscientious individual might swear the legs have never ceased moving. It is better to have the horse at once brought into the stable; to cleanse the skin with liquid soap and warm water; and to close the open pores by the application of cold fluid; then, with

vigorous friction, using straw wisps, to cause a reaction in the circulation. Only, where the author's last recommendation is adopted, the friction must not cease until the skin glows, which it usually will in a remarkably short period.



THE GROOM, ON HIS KNEES, TAKING OFF THE BANDAGES AND RUBBING THE DIRT OUT OF THE HORSE'S LEGS

All grooms are much disposed to treat the foot of the horse as a mysterious organ, which none but a person reared in a stable possibly can comprehend. This is the result of impudence and ignorance, working for the exaltation of selfishness. The foot is not generally understood, because people, in their folly, will insist on regarding a very simple member as an uncommon and a complicated structure. The horn being porous, insensible perspiration should escape through its minute openings. To prove this, let the gentleman accompany his nag to the farrier's, the next time the animal is shod. When the sole is pared, let a wineglass be held over the part, and the surface of the vessel will speedily be bedewed with the exuding moisture.

Now, grooms understand nothing, and care less about the perspiratory property of the horn. They cannot understand how the stoppage of perspiration may induce serious sickness. Therefore, most of the secret nostrums employed to embellish and to keep healthy the horn of the

horse's foot contain tallow, wax, lamp-black, and various solids, which must clog the pores of the hoof, and, by arresting one of its functions, provoke disease. The best application to adorn this part is a little of the glycerin mixture, directions for preparing which have already been given. This moistens and renders pliable the hoof, which, be it black or white, will present a polished surface, without the pores being clogged up by the tenacious property of its substance.

It is a general custom to contract with the groom, that he shall supply the horse with cloths, brushes, etc. The sum usually given is four or five pounds, over and above the yearly wages. This custom is attended with two evils and with one advantage. The evils are,—should the man quit his situation, he commonly leaves an empty stable behind him; or the master has to buy a second time those things which his money has already purchased. The other objection being,—that grooms are likely to procure less than is essential, when the fewer articles they can make shift with puts so much money into their pockets; thereby the horse is either imperfectly attended to, or the vehicle (where the groom has to look after one) suffers from the want of proper appliances. The solitary advantage which attends this kind of arrangement being,—that it enables the proprietor to estimate, with greater accuracy, the cost of his establishment.

London stables are all faulty. Such places are much too small. A stable which is professed to contain four stalls, should be divided into two loose boxes; or it might, if the stalls are of the kind which is denominated "roomy," be converted into three small compartments. Therefore, every gentleman hiring a building for this purpose, should rent one which, in London, is generally esteemed larger than he is supposed to require. The alterations are quickly made; and the proprietor may be certain that his outlay will bear a most liberal interest. Where valuable horses are concerned, rent is not a weighty consideration.

The stable being taken and altered, order the groom to watch the eating capacities of your horses. If he report that each feeds alike, or that all clear their mangers, either investigate the matter yourself, or have the animals observed by somebody on whose report you can better depend. It is seldom that three quadrupeds meet, having precisely equal capacities in any particular. The author has, seemingly, ordered one general quantity for all horses; but those who serve out the provender should apportion the amount by the results of experience.

There is one quality for which most London grooms are remarkable; nevertheless this conspicuous characteristic appears to have, hitherto, escaped observation. They all display a strange union of extreme innocence and the height of knowingness. They profess to understand

everything which concerns the horse. In every essential of the many circumstances which surround all animals, they will not quietly permit their knowledge to be questioned. But with regard to that particular sphere which it is their duty to be acquainted with, they ape an innocence which, in its excess of wonder, amounts to the possible extent of impudence.

The groom prides himself on the power of being "*close;*" but he exhibits this attainment chiefly to his master, and principally at his employer's cost. Let anything be broken in the stable, and it only excites the groom's surprise. He knows nothing about it. If a horse is seriously injured, the man who looks after the animal hails the event as an "accident:" is perplexed by its occurrence, and never has the remotest idea how it could have happened. Should anything be missing, the servant recognizes its absence with astonishment, and remembers to have recently seen it; but cannot imagine where or how it has departed!

On the other hand, his knowledge masters impossibilities. He can make any lame horse go sound; he can induce prime condition in less than a week; he can cure glanders; he can render the most savage horse as tame as a lap-dog; he knows how to plan a stable; how to make harness look well and last long; understands carriages; and, in short, is a perfect proficient in everybody's business, though he never knew anything that immediately concerns his own immediate department.

The reader will have drawn the inference from the above fact that a groom is never to be believed. The author laments he cannot gainsay such a conclusion. The master will only be misled by following his servant's teaching. Domestics of all descriptions are to be employed; theirs is no office of instruction. Yet grooms deal largely in advice, and always have an opinion ready to be advanced. The gentleman will gain who can afford to discard such pretensions. Keep the stable-man entirely to his duties. Never allow him to exceed these. Never permit him to quit his legitimate sphere; for, in any other province, he is the very dearest assistant that money could possibly procure.

In conclusion, never permit the London groom, save at certain unemployed and stated periods, to engage in household duties.

He speedily grows to be worthless in both occupations, when his labor equally concerns the home and the stable. The horse is the excuse, when any domestic order is not fulfilled; the house is his justification, whenever complaint is made that the quadruped, the vehicle, or the harness exhibits evidences of neglect. This is one of the reasons why so many disgraceful single horse "turn outs" may be beheld

journeying through the streets of London. Sights which are melancholy to contemplate, and disgraceful for any gentleman to acknowledge.

In a previous chapter the author has described what a stable ought to be; but he anticipates it will be a long time before the public shall consent to adopt the writer's notions. Most persons will not soon amend or speedily change the conveniences attending the present form of stables. However, when renting a building divided into stalls, anybody may command one loose box. This is readily made by placing two bales across the gangway, reaching from the farthest trevise, each bale resting against the wall of the building. Such an extemporaneous makeshift has been found very useful in cases of severe injury or of sudden disease.

THE MANNER IN WHICH THE LAST STALL OF A STABLE MAY BE READILY CONVERTED INTO A LOOSE BOX.

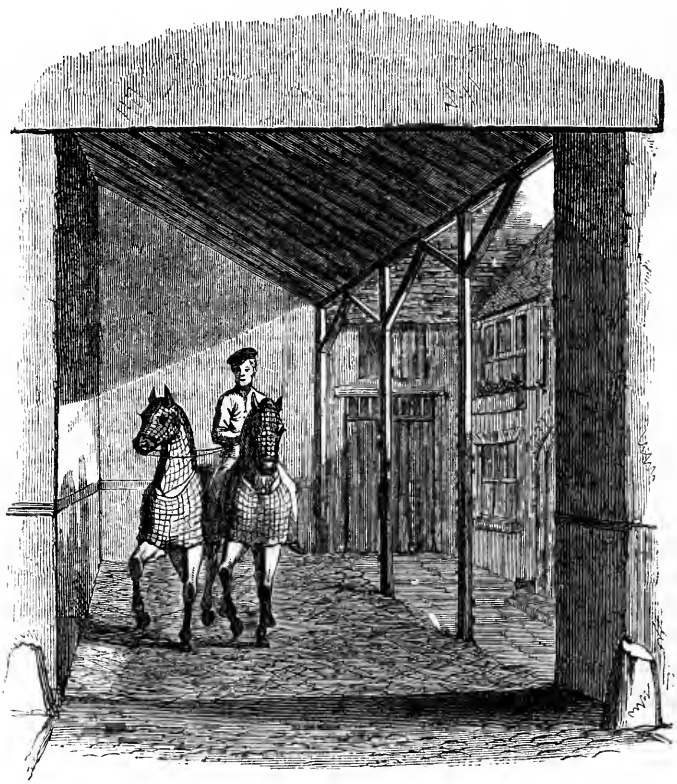
CHAPTER XI.

HORSE DEALERS—WHO THEY ARE, THEIR MODE OF DEALING, THEIR PROFITS, THEIR MORALITY, AND THEIR SECRETS.

"ALL horse dealers are rogues!" Such is a common belief, which too many persons are willing to indorse. The term "horse dealer," however, embraces individuals of very adverse and of entirely different pursuits, each seeking business in opposite spheres; one rarely meeting the other; but all trading with the animal, though with a very dissimilar description of horse. Horse "copers" and horse "chaunters" assuredly buy and sell horses. So far they are entitled to be called "horse dealers;" but all such characters are unscrupulous rogues. Most liverymen, and the various people who live in a mews, or write "job master" after their names, delight in "a deal," when they can contemplate a speedy and a safe profit. Carters, cab proprietors, farmers, and the heads of all commission stables either buy or sell—or do both occasionally—horses. There is hardly a gentleman in Britain who, if buying or selling an animal could constitute a dealer in horses, might not wear the title. The genius which presides over an auction mart has always a desire to knock down, to himself, any very cheap lot; while the majority of blacklegs and of men about town can, generally, inform an inquiring friend of "the very spiciest thing," which will "be given away for the merest trifle."

Of all these cheats, for all are ready to become such upon opportunity, the bad one, perhaps the least suspected, is no other than gentlemen who, over a glass of wine, will reluctantly part with a "screw" for fifty times the value of its carcass. The worst specimen of unmitigated imposition, having any pretense to fair bargaining, which the author can call to mind, was thus palmed off upon an unsuspecting friend. The gentlemen looked fierce and talked loud when expostulated with, having strong motives for not hearkening to reason. There are always one or two very pleasant fellows of this stamp, riding after every pack of hounds. They usually are careful equestrians, very saving of their steeds, excepting when near to some youthful member of the hunt; then the rein is slackened and the spur quietly applied. But of all

the impostors who practice with horses, the rankest and the most indefensible is the scamp who advertises "the property of a gentleman deceased." Such a "dodge," judging by the numbers who adopt it, must prove a paying pursuit. Yet this form of roguery has been so frequently exposed, and is apparently so thoroughly known, it becomes difficult to imagine the spell by which its daily victims are fascinated.



A PEEP INTO A DEALER'S YARD.

The horse dealers of whom the present chapter pretends to treat belong to none of these parties. They shun the mews, and each possesses a private yard, with his name painted above it. These places are always scrupulously clean. The entrances are ever adorned with a sprinkling of fresh sand. Facing the gateway is a covered ride, invariably deeply littered with clean straw. On one side of this ride is a spotless wall, opposite to which there exists a paved space or broad roadway. On the farther edge of this paved space stands a sort of cottage, looking as

smart as new paint or whitewash can render it, and adorned with all kinds of cockney rusticity. Here resides the master,—a person favored with a goodly presence, and, when waiting for customers, always clothed in spotless apparel, generally of a sporting character.

This tradesman does not pretend to sell cheap horses. Most ignorant people, however, hunger after bargains, and out of such desires the numerous dishonest traders make their market. A really cheap horse is not to be honestly purchased in London. Those who wish for such an article, should follow the example of the regular dealer; they should travel among the northern breeders, or they should visit the far-off fairs, where such people congregate. If to do this involves too much trouble, or necessitates too great an expense, then they should be content to pay those persons who, in the way of business, encounter both the fatigue and the cost.

THE NIGHT BEFORE THE HORSE FAIR.

The London visitor to a Yorkshire farm or to a country fair must not, however, expect that any cash will enable him to pick "the field." Liberal as may be his offers, there is an influence which can take precedence of money. On the farm and at the fair, the London dealers are expected, and generally have the earliest information when anything very choice is for sale. Their advent is anticipated at the several inns which they frequent; their arrivals are bruited about, long before deal-

ing is supposed to have commenced. All breeders are anxious to sell to these notorieties. Private views are proffered and accepted; sales or exchanges are made, and business may be very brisk, days prior to the fair beginning. In short, too many gentlemen visit the gathering for amusement. The farmer cannot by outward signs distinguish such from the would-be purchaser; whereas the dealer always means buying. This constitutes the purpose of his visit. His time and money are wasted, if he travels far and makes no purchase. The certainty about his intentions, as well as the prospect of securing a future customer, insures him the first offer from all who have colts for sale.

The legitimate horse dealers are, as a body, most honorable and highly respectable men. They are not all profoundly educated, though there are among them exceptions even in this respect; but in their business with mankind, no class is more undervalued; no class is more exposed to annoyance; and no class can display a finer sense of probity. There is, perhaps, only one failing that could be justly maintained against the entire body: that one may not be denied, although it is easily excused. They are habitual liars! In the way of trade, no horse dealer can speak the truth concerning any animal he may possess. All such creatures are without fault, trick, or blemish! The whole stud are spotless pictures! Each and every one must be perfect!

It cannot be imagined that honest people delight in needless lies. The violation of a moral obligation can afford no gratification to an honorable mind; but when a large body of men exemplify any one particular failing, it may be reasonably concluded that the pressure of society has induced the deficiency which we, who are removed from the crowd, must not too severely stigmatize. The public well know that a faultless horse—one perfect in form and pace—which can do everything and can carry anything—a creature without a "vice," and free from blemish—is a species of sphinx, which the oldest equestrian has never looked upon. Yet no one ever enters a dealer's yard, except he be hunting after this impossible perfection. Were the willing customer met with candor; were the tradesman to show his stock, and truthfully to catalogue the defects of each,—who, to reward veracity, would purchase the confessedly faulty articles? No one! Therefore the public force the dealer in horses to abjure truth, when they unite and they insist he shall possess creatures which in this world are known to be positively unattainable!

Society is clearly answerable for the dealer's misstatements, since men will only visit him on certain terms, which declare he shall lie to live, or he may tell the truth and starve. His customers tacitly unite to entangle the man in a web of falsehoods; while not one of these persons, even the most credulous, believes a syllable of the needless assertions t:

which they listen. No one accepted a horse as sound, because the dealer protested it was, "as a roach." A warranty would be taken, although the oath of the seller should attest to perfectibility of the animal. A species of fiction is, consequently, employed by the class as a business requisite; but the habits of trade are not transplanted into the transactions of private life. The author has known tradespeople among horse dealers whose characters were as estimable and whose private words were as trustworthy as those of any gentleman whose friendship he has the honor to enjoy.

All callings have certain prides or weaknesses in which the community at large cannot be expected to sympathize. Horse dealers are not exceptions to this rule. The first qualification for the calling is the recognition of a good horse,—no matter where or under what circumstances it may be seen. With the recognition must also exist a power of correctly fixing the selling price or the marketable value. Complex calculation must also be instantly solved. The quadruped may be lean: then must be estimated the time and the money requisite to promote the selling condition. The animal may be worn out with unsuitable employment: then must be reckoned the sum which will train it to a more fitting use. The creature may be a colt, raw, and at a distance from the dealer's home: quick as thought, however, must be ascertained the probable cost of breaking and of conditioning, with the hazard, etc. attendant upon a long journey. These things must be summed up at a glance; and, while the brain is engaged, the countenance must not betray the matter of cogitation.

An ability to do this is the attainment which enables a stout person to stand the center of a group,—drinking, laughing, and chatting; nevertheless keeping his mind so steady and his eye so clear to business as will justify him in purchasing young stock which has only been once led past him. All horse dealers, however, are not thus gifted: very many live to repent the hasty judgments on which their money has been staked; but the ideal, to which all aspire and which not a few certainly embody, is fairly stated in the above qualifications necessary for the successful pursuit of the trade.

Not the easiest portion of the business is to form a just estimate of the taste of the customers; so that when a horse is shown, the purchaser may ideally behold some patron upon the animal's back; for a dealer rarely likes to buy without he can discern his way to the end of the transaction. "Ah! just Sir William's stamp!" "Lady Louisa would give her heart rather than miss that, after having seen it!" Or, "The very cut for Lord Harry's hunt!" These, and similar mental ejaculations, are at once acted upon. The tastes and foibles of various customers are

always estimated. It is astonishing how seldom comparatively coarse and uneducated judgments err, though all such calculations may not invariably succeed. The failures, together with cheap purchases, however, constitute the ordinary stock-in-trade of most yards.

The foregoing qualifications are imperative in first-rate purchasers; but other accomplishments are also requisite in the perfect dealer. His manner must be so brusque as to provoke laughter; nevertheless so apparently simple as not to alarm the most timid customer. This suggests a nice medium; but it is astonishing how tenderly some unrefined intellects will embody it. The stout person who, as you enter the gateway,

THE MAN, GRACED WITH THE SWEETEST MANNERS, WHO SELLS THE HORSES.

salutes you with a not altogether ungraceful lift of the hat, and rings the bell as he approaches to learn your wishes, may be barely able to read or to write. In a particular line of diplomacy, however, he is a model worthy study; for, smiling as his face may be—bland as his manners

are—or studied as his dress appears—still, he is reckoning you up in his own mind; and all the time you are quizzing him, he is cunningly endeavoring to fathom your intentions and to form a correct estimate of your character.

Certain members of the trade possess in an extraordinary degree a power to comprehend the unacknowledged purpose of those individuals whom they encounter. Without such an accomplishment, no man is fitted to take charge of the yard; as, unless he be thus qualified, the horses might be trotted up and down when quiet was needed to rest the bodies or to lay on flesh.

Gentlemen who do not exactly know their own minds, very rarely become purchasers; but these uncertainties are seldom tired of seeing the dealer's stock run out before them. Were not such individuals to be recognized, the grooms might be vexed, the master might be fatigued, and the animals might be plagued,—only to extort a verbal promise "to look in some other day." Whereas popular prejudice insists that on the dealer's premises all should be smiles—men and horses must appear overflowing with life—gay and happy; as though the place sheltered no anxiety, and none within it knew a care.

The regular horse dealer rather avoids than encourages customers who are called "flats." He does not object to inexperience, when it will rely upon his generosity, and confide itself to the more practical judgment of the tradesman. Such a person, under the dealer's guidance, perhaps would be safer than he would be in the hands of most fashionable friends. But there is always an absence of welcome when a young gentleman lounges into the yard, who wants something and never buys anything until he has been thoroughly taken in.

When an individual presents himself to the attendant of the ride, it is necessary the standing of the new customer should be ascertained before any quadruped is submitted to his notice. Curious mistakes are sometimes made; but it is now understood that such a matter must be decided prior to the commencement of any business. This arrangement saves time, and also secures other advantages; for, obviously, nothing could be gained by showing "a park hack" to a city merchant; neither would much satisfaction be expressed were the animal suited to drag a spring cart submitted to the notice of some titled turfite. The time would be wasted, during which a cob worth five hundred pounds was paraded before a person whose ideas were limited to something under forty guineas; and the quiet nag, qualified to carry age with safety. would not be even inspected by a youngster who was impatient to be mounted upon his first "May bird."

The phrase last employed—"May bird"—may not be intelligible to

all readers. Therefore the equestrian must pardon the author, if he here interrupts the course of the present description to explain its meaning. A "May bird" implies a young animal of no great height, with some showy points, but with no constitution to stand work. These quadrupeds are kept, during the spring season, in the stables of most London dealers; and they are shown to young gentlemen as handsome saddle horses. The majority, however, soon succumb to work; many yield as the warm weather increases; and few endure even to a second season.

A MAY BIRD.

To establish a connection requires that each customer should be better suited even than pleased. Both are, of course, desirable; but a person well suited generally becomes well pleased; whereas the individual whose pleasure is alone consulted, not being suited, is certain to grow ultimately dissatisfied. Horse dealing, therefore, is attended with considerable anxiety; yet the members of the calling generally grow fat upon such a diet. Few, when of middle age, retain a figure fitted for the saddle, although nearly all have been good and fearless horsemen during youth. The pursuit, however, is not one of laziness; but often obliges the endurance of great bodily and mental fatigue.

All dealers travel much. They always attend those large horse fairs which are held in the north of England. Their business compels them to make periodical journeys among the distant breeders of stock. When walking over the breeder's farm, they often interrupt conversation to bid for some foal; and may, off-hand, purchase the animal which shall please their fancy. Business always seems the last subject which oc-

cupies the dealer's thoughts; nevertheless, he is invariably alive to the opportunities of trade. Some of the calling will buy unbroken or very young colts, though such speculations are rather exceptional with the general body. All, however, will make a conditional bargain for the "likely thing." Such transactions are arranged in few words; and though no writings may be drawn up, these understandings are usually observed by both parties to the contract.

At the successive horse fairs, a dealer generally occupies the same station. His back may rest against some rail; and here, surrounded by an eager group, he appears the most gay of the party. Various young horses are brought and run before him; for, at the accustomed spot, the little man is always anticipated. Some horses he buys; others he rejects. Respectable dealers usually accept their purchases upon no better security than their personal judgment. They ask for no written warranty; a verbal assurance that "all is right," is with them sufficient. Though should any palpable defect or injury, which has undergone treatment, be subsequently discovered, of course the bargain is void.

But low or sharp tradesmen are very particular about written warranties; consequently they cannot command the choice of the market. Breeders know perfectly well the dishonest uses to which a written warranty can be converted. A horse may be sold; but it is not always got rid of when a written warranty accompanies the sale. It may be taken to London. Months afterward, the breeder may receive a letter which shall contain a veterinary surgeon's certificate of unsoundness, stating that lameness or "the seeds of disease" must have existed at the time of purchase. This letter generally concludes with a demand that the purchase money may be returned, all expenses be paid, and the animal be fetched away; or, if these conditions are not convenient, the late purchaser will consent to retain the horse, supposing twenty pounds of the sum formerly received are forwarded to the address of "your humble servant."

Now, to dispatch a man to town, to bring an animal many miles, to risk the chances of the journey, to return a sum of money which was probably spent as soon as received, and lastly, to pay for several months of keep,—are bad conditions. The farmer may be morally convinced that the report is unfounded; but he has three choices before him: either to risk an action at law, to expend a considerable sum, or to be swindled out of a comparatively small amount. Any person can see which of such terms must be the easiest to a needy man; and the last is generally accepted. Thus, by a dishonest practice, the unscrupulous dealer obtains a colt cheap; especially should the subsequent sale prove a fortunate transaction.

The honest dealer purchases the young animal when fresh from the breaker's hands, before a day's work has been performed, and has the quadruped led or conveyed to London. If the journey is accomplished by the road—the stages, of necessity, being short—the expense and hazard are, of course, equal to the time occupied on the way. The railroad is a cheaper mode of transport; but it is attended with a certain risk, which is peculiarly its own. Some young horses will perish from the fright engendered by the journey; others are made seriously ill by the novelty of the situation; while many knock themselves about, and arrive at the journey's termination seriously blemished.

Several respectable dealers would prefer to have their stock rather killed outright, than behold it seriously blemished. In one case, the loss is by no means certain; in the other instance, the pecuniary sacrifice is small, when compared with the annoyance and the trouble consequent on the treatment of acute suffering. Besides, all dealers dislike to have an ailing quadruped on their premises, which they are desirous should be known only as the abode of happiness and of health. For such reasons, not a few of the fraternity, when any animal may be diseased or blemished, invariably dispose of it for whatever it will fetch, rather than incur the chances of recovery, or open their gates for the admittance of damaged stock.

A business so conducted—requiring a considerable outlay, necessitating heavy risks and attended with frequent losses—must be recommended by certain profits. The costs of every dealer's establishment are very serious. Animals—especially very young animals—make no immediate return. The charge has not terminated when the colts are stabled in the place of trade. The creatures are then raw and wild. They have to be gradually brought into selling condition, and have to be fattened till unfit for work. They also have to be groomed until their coats shine "like satin." Such are the obligations of the London market; and though all animals in this state are dangerously near to disease, yet whoever, inhabiting the metropolis, should attempt to dispose of horse property in more sound condition, will, in the certainty of loss, be heavily rebuked for his temerity.

Moreover, when fresh from the country, young stock have to be accustomed to the bustle and noise inseparable from the streets of London. They have to become familiar with the difference of handling, voice, and manner, which distinguishes Yorkshire from Middlesex. The dealer, therefore, has some further employment, after his purchases are all safe in his stables. He has to rise early, before respectability is awake to watch his doings, in order to break in his fresh acquisitions. None but perfectly-trained horses are suffered to go out into the thronged

thoroughfares. An animal is often secreted for months before it is permitted to "show abroad," and it is then expected, like a beauty at Almack's, "to ravish the eyes of all beholders." Lastly, the dealer in horses has to endure those checks and disappointments which attend upon every known speculation with life.

Then, if not sold, the quadrupeds nevertheless must be fed. Thus several, before they meet a purchaser, "*have eaten their own heads off twice over;*" or, in the language of ordinary life, have for provender cost more than their selling value. No reflective man can, therefore, anticipate a London dealer is to dispose of his stock-in-trade at what is implied by "reasonable prices." Some animals may fetch double or treble the purchase money; but the majority do little beyond paying their expenses. Nevertheless, as the dealer makes the selection, his judgment may be taunted, should he not choose horses that shall prove remunerative.

We shall, however, best judge of the enormous profits attending this pursuit by considering results, as exemplified in the wealth of individuals. Perhaps for every man who succeeds in the business, three persons attempt it and become bankrupts. The fourth man may do a large trade; and, spite of the fickleness of fashion or the accidents of the London season, may maintain a position for several years. But how seldom is society startled by hearing of a deceased horse dealer having left behind him any vast sum of money to "his heirs and assigns!" On the other hand, the author knows of many instances where reputed thriving dealers have refused to rear their children to their own calling. Such acts do not denote horse dealing to be a highly lucrative speculation. Judging from long experience, the author would not point to the dealers of London, as a body, remarkable for the possession of any considerable amount of property.

Carriage horses no London tradesman professes to keep. Thus one source of profit is relinquished; but should a pair of extraordinary beauties be encountered, when "on the travel," these will be secured; because the dealer knows there is always a market for such commodities. The treaty for the transfer of these rarities may even have been concluded before the prizes reached the marketable age; for, as a rule, extraordinary quadrupeds are seldom brought into the common market. It is an ambition with the trade to point to a pair of showy bays in Her Majesty's stables, or before the vehicle of an exclusive nobleman, and to boast "those horses came from his yard." Of such scarce opportunities every dealer will joyfully avail himself; but there are many cogent reasons which prevent him from constantly keeping his stables supplied with the ordinary kind of carriage quadrupeds.

In the first place, the horses known as Cleveland bays are costly to purchase and expensive to keep. These creatures soon lose condition, and almost as rapidly yield to disease. Then, their sale is mostly confined to the London season. If not disposed of during their third year, age does not increase their value. Moreover, there are parties styled "large job masters" who, almost exclusively, trade in this kind of animal. These persons all keep extensive studs, some of the body being said to possess more than a thousand horses of this particular description. Such animals are let out by the year, for amounts varying from fifty to one hundred and fifty pounds; the latter sum, however, mostly includes a contract to supply the stables also with food.

Should a quadruped, while thus engaged, be taken ill, the owner receives back the invalid, and fills its place with a healthy substitute. If an animal is not approved of, it can always be exchanged. Thus, for a fixed sum, a carriage is nearly certain to be well horsed; which, when equine episootics prevail, cannot be assured, where even more than the necessary pair are maintained. The gentleman is consequently spared the fruitless trouble of searching for, and the great expense of purchasing, those horses which fashion points to as, *par excellence*, alone fitted to run before a stylish equipage. The person, however, who lets out the animals does not always provide the food; very rarely does he pay the cost incurred for shoeing, for lodging, or for attendance; though, for a proper consideration, he will contract to provide everything,—even the carriage in which his patrons shall ride.

The owner of the carriage generally has to find shoes, stables, and servants, the jobbing being limited to the horses or to their sustenance. Job masters are generally much more wealthy than dealers, notwithstanding the feeble character of the Cleveland bays, and the notorious want of care bestowed by most persons who hire other people's property. Such a business evidently requires some tact and a large capital, to be successfully pursued. It is imperative the job master should stand especially well with the servants of his patrons. Such a necessity implies a perpetual drain upon the pocket, as the menial's good-will, if desired, must be purchased. Then, there is a large body of retainers to keep and to trust. The employment of these persons is to loiter about the different mews; to treat the servants; to coax information concerning masters' habits and missuses' exactions.

Such particulars are essential, that the jobber may know where to place his animals. Young horses would be battered to pieces in the service of a lady who likes to be driven fast, pulled up sharp, or who stays "out late o' nights." An elderly person, who never ventures abroad after dark, and is averse to speed, has the carriage sometimes

beautifully horsed; because such stables are regarded as nurseries, although, more than occasionally, they are used to coax a sick animal back to health. Here the jobber's understanding with the coachman comes into play. The driver makes repeated complaints of a certain horse. "It nearly overturned them to-day." "The servant is certain an accident must happen." "He must really leave a kind employer, if that horse is to be kept." The job master at length is sent for; of course he is deeply pained; but, to oblige Lady Everard, he most reluctantly consents to receive back a vigorous young horse, and agrees to supply its place with a debilitated cripple, which has but recently left a loose box in some veterinary establishment.

One hundred and fifty pounds may appear to be a heavy sum to pay annually for the use of a single pair of horses; but the agreement is not strictly of this nature. The job master contracts to keep a carriage horsed for one year, and to feed the animals while so engaged. To do this properly will, on some years, require the services of four or five horses. The job master also agrees to take back all sick quadrupeds, and to pay for all necessary treatment, as well as to put up with every kind of unavoidable accident. In London, moreover, all Cleveland bays are expected to possess high action. Such a form of stepping soon disables the feet; while the bearing-rein speedily renders the animals "roarers."

These evils are, generally, confirmed before the advent of the sixth birthday; thus, few of the quadrupeds live to be discarded,—in proof of which, Cleveland bays are not to be generally seen upon the cab rank: very rarely is this favorite of fashion to be encountered performing any of the lower grades of equine service.

With these creatures the London dealer does not habitually meddle; neither does he pretend to regularly trade with racing stock, although it is not unusual to meet in his stables some thorough-bred which was at its birth entered for the Derby. These bloods, however, are always "weeds;" or, in plain language, they are quadrupeds which have been rejected by the trainer as worthless. Their bodies are short, and lack substance; their chests are narrow; while their long legs are deficient in bone and in tendon. Their quarters are mean, and their withers low. One or two of this kind stand in the stalls of most dealers. They are pretty and graceful, being agile and light; but, when shown to a customer, they usually stand upon slightly rising ground, which may "*accidentally*" give to them an extra half hand of height; for such specimens of horse flesh are all of stunted growth.

Hunters are not, as a rule, to be bought in London; nor does the term, in strictness, imply any particular breed. Animals in a condition

for the chase must generally be sought in the neighborhood of the various "meets." Nevertheless, many a stout horse, which would make an admirable hunter, is to be often bought of a London dealer. The handsome nag, the showy brougham horse, the spanking trotter, the pretty May bird, etc.—in short, all such quadrupeds as ladies admire, and as gentlemen love to exhibit during "the season," may be met with in every regularly-appointed yard.

A WEED.

When before a dealer, if the gentleman is no judge of a horse, or has no confidence in his own opinion, he should not attempt to be thought wise on such subjects. The salesman may not stare at the purchaser; indeed, the trader may appear impressed with an overwhelming idea of the customer's importance, as he humbly asks a question and submissively waits a reply. But, long before the first animal has been run out, he will accurately have taken the measurement of his patron. The man will know the limits of his visitor's equestrian attainments as perfectly as though they had been companions from the hour of birth.

Never demand a warranty. Such things are only temptations to take proceedings. They may influence a jury; but the plaintiff, frequently, only recovers a loss. The verdict is often unjustly given against a dealer whom a gentleman drags into court; but private or extra costs generally consume more than the money which marks the difference between a legally sound and a tolerably serviceable quadruped. All dealers are not, in attorney's phraseology, "worth powder and shot."

Rumors about law may render the tradesman's creditors pressing; while the certainty of loss may induce a man to be somewhat careless in his expenditure. Should failure anticipate the trial, the plaintiff will have to pay his own expenses; for, under such circumstances, a verdict is simply so many recorded words, awarding nothing!

Nor is the seller always to blame. All dealers are not positive judges of soundness. Moreover, soundness is often variable. An animal may be sound in the morning, unsound at noon, and sound again at night. Life is fixed to no one condition. A man may be well when he rises, he may distraught before mid-day, and nevertheless may be quite hearty at eve. Horses are subject to temporary influences, like those which affect their masters. But society will regard horses and saucepans only as articles of use. A wide difference divides the animate from the inanimate; but, notwithstanding the advance of education, mankind have yet to observe in their behavior those broad distinctions which nature has instituted throughout creation.

"ANY GENTLEMAN AS REALLY WANTED A SOUND AND SERVICEABLE BROUGHAM HORSE, I——"
"WELL! YOU MAY SEND HIM TO FIELD'S—AND GET HIM EXAMINED."

It is the safer and the better plan for a gentleman not to bother about soundness. To keep his ideas fixed upon the horses only to discover

whether these are equal to his desires. He sees a horse run up and down the ride; observes its manner of going; notes its make, shape, and height; remarks its color; ascertains the price, and roughly estimates its qualities. But he had better not finger the animal, or attempt to investigate matters which concern more than his personal approval. Having seen these things, when the dealer begins to talk, he had better turn upon his heel, and do no more than order the quadruped to be taken to the veterinary surgeon who may be honored with his confidence.

The horse dealer generally feels his opportunity has opened when the gentleman meddles with matters which he does not fully comprehend; and very few gentlemen are qualified to act as veterinary surgeons. By adhering to the above plan, the purchaser is the more likely to please himself by his selection, and is certainly less likely to be imposed upon. The attention is steadily fixed upon the individual points of recommendation, and the mind refuses to enter upon scientific questions concerning which the non-professional man cannot be instructed.

The examination being passed, before the money is paid the quadruped is either saddled or harnessed, and is tried by the contemplating purchaser. When mounted upon or when sitting behind a strange horse, no person should indulge any attempt at display. The object being to ascertain the acquirements of the steed, the rider should allow free scope to its humors, and should encourage its confidence. Employ neither whip nor spur. Reject such articles, if they are offered. A good animal will necessitate no coercion; but severity may, possibly, disguise either good or bad qualities. Should chastisement be imperative, refuse to administer it; but reject a sluggish animal. Allow the reins to be almost loose: let the creature go its own pace, and take its own road: watch every movement, however, and carry the bridle hand ready to check or to support, should either become necessary.

A lively and desirable nag should answer to the voice. Often the intention will be comprehended, when no sound is uttered. There is a speedy and mysterious freemasonry soon established between an intelligent nag and a proficient equestrian. This, it is desirable, should be developed. When the rider or driver is seated, he should reject all further service from the groom. Permit the horse to walk, trot, canter, gallop or bolt out of the yard: should it go quietly, watch its head and ears as it passes through the gateway. Many young quadrupeds will be alarmed during such a passage; some will evince their feeling by very demonstrative behavior. Therefore, allow no man to hold the rein, and, under a pretense of attention to the gentleman, give confidence to the nag, now controlled by a strange master.

Should the first trial not answer expectation, the treaty ought not

therefore to be abruptly broken off. Many a promising and a valuable horse is thus cast upon the dealer's hands, the estimable qualities of which a little patience would have made apparent. But a good horse may require to be educated, before it will carry a certain master as he desires; this reason forms an almost unsurmountable objection to any conclusion being just, which is based upon a solitary trial. Most dealers, if they know the animal should suit, will grant a fortnight's further acquaintance, before the bargain is concluded. The terms generally are, that if the sale is broken off, then the gentleman pays for the services he has engrossed: should the treaty be ratified, then the purchase money covers all demands, the purchaser paying only for the provender consumed during his period of hesitation.

In every horse transaction, treat the tradesman with consideration. Many gentlemen, when speaking to a dealer, assume a familiarity which is an impertinent, and not unseldom proves to be an expensive, affectation. Others adopt a superciliousness which is very offensive and rather dangerous; for, while the customer is supporting a foreign behavior, the dealer may be humoring the whim, and covertly flattering, though watching his opportunity for revenge. Above all things never lose your temper, or by your language violate the rules of decency; as, by so doing, you descend to a level where you are certain to be mastered. These cautions must be observed during personal intercourse. With respect to the rest. Avoid lawyers. This is the more easily done, if the few directions here laid down are rigidly adopted.

Dealers are, generally, very accommodating in their trade transactions. They will do anything, excepting return money; a condition with which most of them are not able to comply. They will take back an animal which does not suit. They will allow the dissatisfied gentleman to walk through their stables, and to choose another horse, on the terms that the choosing party pays the difference of price between the nag which has been sent back and the steed which is afterward preferred. To be sure, such exchanges are apt to prove costly, and, generally, are prosecuted very much to the dealer's advantage. Therefore, a gentleman has reason for suppressing his discontent; and may do well to endure, a little longer, the quadruped which originally pleased him, and which may turn out an estimable acquaintance after the first qualms of early proprietorship have subsided.

If dealers have an aversion, it is to be bothered by the visit of a "greenhorn," who does not know exactly what he wants. Consequently everybody, before entering the premises, should ascertain his desires. He must not request "to see an animal fit to run in a gig, but which can carry saddle occasionally." He should not inquire for "a nag which he

or his sister can ride." He must ask to behold a horse fit only for one purpose. If to be ridden, the weight of the rider should be stated, and the age of the equestrian is likewise desirable, as well as the habits—that is, whether the gentleman is old or is young, is used to the saddle, or is about to take horse exercise for the first time, under medical advice. These things are necessary, that the dealer may judge of the strength, the spirit, and the temper which will answer a purchaser's expectation.

So also when a brougham horse is wanted, the weight of the vehicle should be given. If a harness horse is sought, it ought to be named, with the kind of conveyance the animal is required to pull. If a carriage needs a quadruped, other than a Cleveland bay, every particular should be detailed, the dealer being also asked to step round and to look at the creature which it is desired to match. Nothing is better calculated to win a dealer's respect than to have such points ready; for, though these may give some trouble to the novice, they occur as matters of course to the practiced proprietor. Moreover, such particulars save much vexation, and prevent the horses being needlessly disturbed—an occurrence which invariably annoys the best-tempered of tradesmen.

When you enter a yard, never request to see "the horses." Such a demand is a lamentable confession. Ask to speak with the proprietor or with the salesman. State what you wish to obtain. Be precise, even to particulars; and inquire if there is such an animal among the stock. The reply most probably will be negative. Then ask if the person you are addressing knows of such a creature, and could procure you an inspection. Very likely an appointment for some future day will be embodied in the reply given to the last interrogatory. Then you must retire immediately, and patiently wait the promised opportunity.

Never be in a hurry, or exhibit any impatience, in the yard of a dealer. Take everything coolly, and act as though it were far from your desire to look at horses or to walk through stables. Greenhorns are always greedy concerning such particulars. Consult the master; rather confide in his judgment and trust to his activity, than display any forwardness to encounter personal responsibility and to undergo bodily fatigue. Horses are numerous, and dealers are always eager to effect a sale; therefore be quiet and rather reserved, being conscious that, to procure the animal which shall exactly suit in every particular, cannot be a very ready, a very easy, or a very speedy affair.

When buying, always, in regard to strength, purchase a horse rather above than in any degree below the purpose you have in view; or, in other words, obtain an animal apparently too strong, in preference to a little too weak or just strong enough, for the work it is wanted to perform. Do this, because strength denotes value when labor has to be

executed; and most men are cruel judges, where the exertions of another's life are concerned.

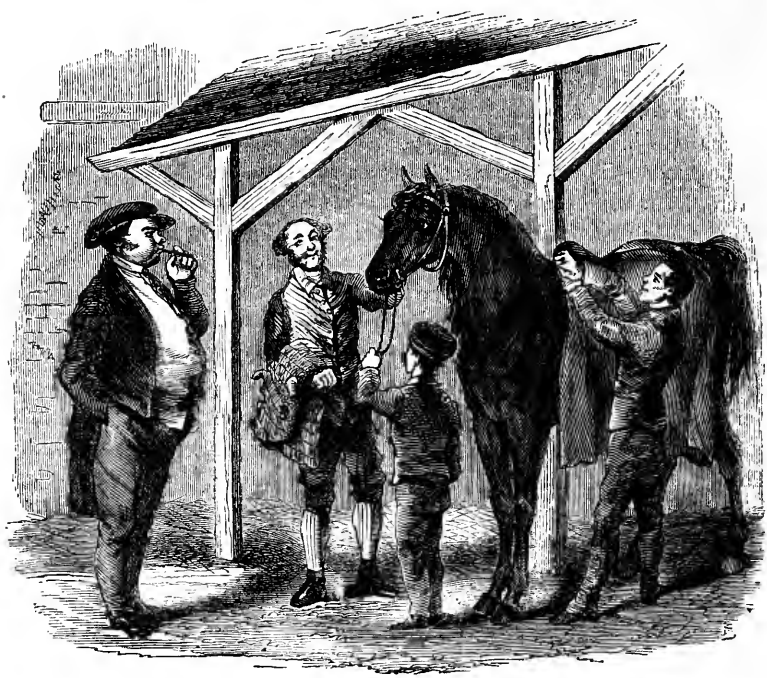
Always enter a dealer's yard prepared to pay for that which you seek; for, in horses, the cheap is, to the general public, the worthless. Bone and muscle, united to spirit and activity, will always bring their value, and are the cheaper, because they will endure longer than a dozen of those lanky and misshapen substitutes which are disgracefully overweighted in the majority of genteel broughams which traverse the streets of London.

However, pay what he may, no unknown individual, walking into a dealer's yard, should expect to have the positive choice of *all* the trader's stock. Anything *very* good is never offered to a stranger, who can boast of no better recommendation than his banker's account. In country meetings, at fairs, and at public sales, the highest bidder has a better chance, though at these places the market is commonly forestalled; but the dealer knows by experience how difficult it is to procure a prime piece of horse flesh. When he gets such a treasure into his hands, the feelings of his class will not allow him to throw away his good fortune. A fair equivalent or a heavy price can be everywhere obtained; but the one chance of years—the beauty which is rarely seen and scarcely to be purchased—is always regarded as something out of the sphere of regular business. The dealer hoards such a treasure, and hopes to behold it where, for a number of years, it will remain an honor to his judgment, and a living proof that its late master has dealings with the most exalted of England's aristocracy!

In this country, a good horse will always fetch its value, and that price includes something more than money. This is the reason why plain Mr. Smith, who is known to pay the highest prices, never can exhibit a vehicle so well horsed as are Her Majesty's carriages. The gentleman's animals even do not shine forth, when compared with those possessed by some fashionable but notoriously poor scion of nobility. The feelings of the dealers are opposed to Mr. Smith's ambition; notwithstanding treble his money were expended, he could not be gratified by commanding the excellence which his superiors may purchase *tolerably* cheap.

There is, however, in London too much eagerness to possess a well-furnished stable, for a really fine animal ever to be cast upon the open market. The tradesman, when he sees a prime quadruped, buys it always with a mental determination as to the person best qualified to be the future proprietor. The differences between the sums paid will not, therefore, fully account for the noble creatures which inhabit the stables of my lord, and the respectable lot which consume moneyed Mr. Smith's corn.

The existence of such an influence will no doubt be denied by most established dealers, as it will assuredly be abjured by all the outside members of the fraternity. The struggling tradesman is, however, not likely to be tempted by such a possession. A Yorkshire breeder watches his stock from the day of birth. No sooner does the practiced eye notice the promise of extraordinary worth, than the most liberal of London purchasers is invited to travel northward and to consider its probable value. Any trade connected with horses must therefore be of a speculative character; and a fine foal is sometimes partly paid for before the first year has been attained. A kind of deposit is made, to secure the offer of the animal when fit for the market—the money being lost should the purchase not be completed, but the sum being deducted from the price should the dealer agree to perfect the transaction. Thus the principal traders incur great risks, and in return secure a legitimate power of selection, prior to the opening of the public market.



UNCLOTHING THE BEAUTY.

When a promising colt approaches the period of publicity, the greatest possible care is devoted to its developments and to its education. It is

not exposed to the common gaze. No Eastern slave merchant regards with greater jealousy the flower of his female flock than does the London dealer survey what he believes will, in his sphere, prove "the prize of the season." The door of its stable is constantly locked. All its requirements are profusely supplied. It is never taken abroad, save when fully clothed and closely hooded. Only before the earliest hour of business or after the gates have been shut upon the bustle of the day does the dealer feast his eyes upon the bare perfections of his treasured possession. The ceremony of unveiling is then slowly performed, and every particular is minutely examined, lest unforeseen accident should have interfered with the realization of equine loveliness.

The pursuits of the dealer, therefore, are not without excitement, are not devoid of care, nor free from trouble. His stock-in-trade is very perishable, and is peculiarly exposed to deterioration. But most of these people seem to fatten on anxieties. They generally are a heavy, a happy-looking, and a corpulent race; but, like all people who engage in a business which admits of no standard of excellence but success, the established dealer in horses has an overwhelming notion of his own abilities. This is the weak point in his general character. Science is ridiculed, and the results of experience are despised, when either are opposed to the personal opinion of *the yard*. Consequently, few of the calling consult a veterinary surgeon. In the mysteries of disease and in the properties of medicine they acknowledge no superior; for the owner, commonly, is the possessor of secret nostrums which he esteems to be of marvelous efficacy.

After the gates have excluded the confusion of the street, the dealer usually walks through his stables, attended by his head groom. Then frequently such orders as the following are issued: "Jim! Get a cordial; this young thing is scouring!" "Jim! Let Bartley's bay have a warm mash, and shake an alterative into it." "Jim! Mind me to-morrow, that Clement's chestnut wants blooding—the legs are filling." "A pinch of diuretic would do no harm here. Jim! Break me half a one from the locker!" "Jim! Somehow, this brown youngster don't mend kindly. It must be some flying humors;—prepare him for physic." "As for Blossom, I'm tired of seeing her. She has eaten her head twice over! Well! well! Jim. Well, give her a condition ball; and perhaps some greenhorn may fancy her to-morrow."

To dabble with danger is the last madness of conceit. Persons thus imprudent will not bear to be carelessly approached or slightingly addressed. Such an infirmity is soon provoked to impertinence. The reader, therefore, will be only rendered more safe, who observes every recognized form of courtesy when treating with the dealer. This is best

done by avoiding that silly familiarity which must be insulting to the sensible man, but which the knave likes, because it affords opportunities for his practices. Let the gentleman keep his proper station, and the dealer, without being offended, will observe his. But, before the yard is entered, above all things it is imperative to ascertain what is desired, as neither civility nor compliance will be elicited by a general request for "a horse." When the animals are being shown, let the contemplating purchaser be silent. He must not allow any false notion of his equestrian knowledge to betray him into a discussion or expose him to designing compliments. Keep the head cool and the attention clear. Do not finger the animal. Decline all invitations to feel the condition of its legs. Undervalue your own accomplishments, by professing not to comprehend such things; and leave the premises with the understanding that the horse is to pass the examination of some veterinary surgeon of repute.

The dealer will not submit the quadruped of known unsoundness to such a test; because, in case of rejection, the property is not only deteriorated, but the owner has to pay for the process which casts a taint upon his stables: whereas, should the examination be passed, the purchaser takes the nag and pays for the certificate which assures him of its value. These things being done, before the bargain is concluded always specify for a trial, which can alone inform the future master of matters most essential to his personal pleasure, but which no veterinary inspection could discover. It is prudent to attend to these particulars; and it is folly to imagine a warranty can shelter the person who knowingly disregards the security which these alone can afford.

The customer is thus fenced in or protected on *all* sides. The conduct of the dealer should declare the personal opinion of the man who is best acquainted with the animal. The professional judgment, being deliberately pronounced and duly certified, guards the points where a gentleman's knowledge may be deficient; while the trial permits the individual to ascertain such traits as mouth, temper, habits, step, spirit and mode of going. After such qualities are approved, the horse may be safely accepted; and no warranty can be necessary, if the above directions are observed.

CHAPTER XII.

POINTS—THEIR RELATIVE IMPORTANCE, AND WHERE TO LOOK FOR THEIR DEVELOPMENT.

A GENTLEMAN, when designing to purchase a horse, should think about the matter, and should determine, in his own mind, the kind of animal he desires to obtain. The want of such definite knowledge is the great deficiency with the majority of would-be buyers, and is the chief cause of those annoyances which, ultimately, tempt too many well-disposed persons into dishonest company.

Having settled the minutest particulars to his own satisfaction, the gentleman should never seek to secure a cheap article. Knowing as may be the general public, horse dealers are quite up to the mark of popular cunning. Goodness in horse flesh is money's worth at any market; and every horse dealer in London is fully sensible to the merit as well as to the value of all creatures in his yard. Therefore, the gentleman will best court civility and honesty by being prepared to give a fair price for that excellence which he is desirous of securing.

The above maxim must be attended to, because a feeling person, when he buys a horse, will be sensible he is taking a new member into his family. No right-minded man can ever treat life as it were an inanimate article;—to be accepted at his will and to be discarded at his pleasure. A lasting bond should, through ownership, be formed between mute submission and honored authority; for man, having the right of choice, tacitly undertakes to shelter and to protect, as a return for willing service rendered. Such is the implied or natural agreement: its obligations ought to enforce that gentleness which should guard the inferior.

To fit the reader for exercising a right of selection in a dealer's yard, is the intention of the author. The gentleman who peruses this page must, therefore, pardon an impertinence if, in the following descriptions, he is treated as one entirely ignorant of horse flesh. When all must be addressed, it is clearly impossible to make allowance for degrees of learning. The most ignorant must be made to understand, and the best informed must generously overlook those discursions which, disregarding personal attainments, appeal to the condition of the uninitiated. To be

intelligible, it will be necessary the author should point out the importance of certain structures, and explain the uses which appertain to particular organs or parts of the animal economy.

The skeleton is the framework of the trunk and of the limbs. The vertebræ are the base, toward which all the other bones concentrate, or from which all the other osseous parts originate. Therefore, to start from the commencement, we see at one end of the back-bone the skull is situated; while at the other extremity the tail is pendent. The arrangement exactly accords with the system observed in every well-regulated vessel. The sailor who is appointed to look out, stands forward; while

THE SPECIAL USE OF THE HEAD, MANE, AND TAIL, WHEN EMPLOYED TOGETHER.

the individual who steers is always stationed at the poop. The tail, in the quadruped, principally directs the course. Hence we perceive the folly of those people who, to gratify a whim, excise or mutilate the motor integrity of so important a part: thus sacrificing positive safety to a false notion of improved appearance.

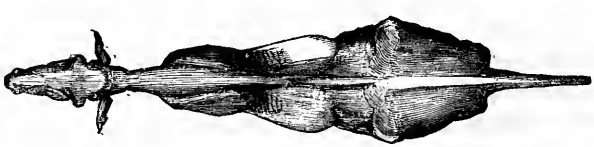
The animal, gazing in the direction which it desires to proceed upon, inclines the body toward that point; while the tail, being likewise moved in an opposite course, sways the trunk into the proper track. The flowing hair, operated upon by the wind, gently favors the inclination. By understanding this, the reader will comprehend the reason why a short tail is rarely compatible with perfect safety. The appendage, which mankind regard as chiefly of service to switch away the flies, therefore has a higher and far more important function assigned to it.

The want of alacrity in avoiding danger is justly esteemed a great defect; but what right had man to complain of his dumb companion's tardiness, when, to gratify a caprice or to conform with the fashion, he deprived his servant of the agent by which all sudden motions were regulated? Happily, however, the barbarous custom which once prevailed is now generally discarded; although docking is even at the present moment occasionally practiced, under a notion of improving deficient quarters, while thinning the tail and mane are commonly adopted

Nevertheless, the reader of any experience can hardly have failed to remark that, since the practice of mutilation has become less general, those fearful horse accidents which during the old coaching days were of almost hourly occurrence, have not so frequently shocked the sensibilities of society.

Such a circumstance cannot be accounted for by the smaller number of animals at present retained for private use. It is well ascertained that railways, which it was originally supposed would prove detrimental to the breed of horses, have had a decidedly opposite tendency, the animals being about twice as numerous as they were during any previous period. Thus, with more universal distribution, greater security has been attained; and we perceive, in general operation, only the one cause to which present security can be assigned. Masters are not much more prudent now than they were formerly; while fast coaches were not the sole causes of the catastrophes of our fathers' days; neither did such vehicles start at every hour nor travel upon every road.

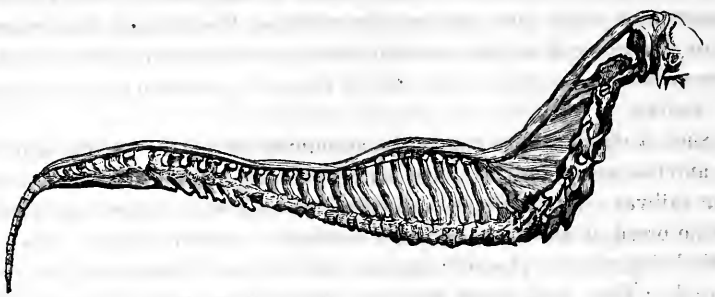
The turning or guiding power having been pointed out, the attention must next be directed to the region where all strength centers, and from which all ability for motion proceeds.



THE BACK OF THE HORSE, AS SEEN FROM ABOVE.

When the reader has been riding in any vehicle and looking down upon the spine of the horse, he can hardly have failed to remark that the widest portion of the body was the prominence of the hip-bones. The posterior parts, or those behind the projections, are not continuous of size; but they nevertheless are far more bulky and altogether more fleshy than any of the forward surfaces of the body. Flesh is only another term for muscle; consequently where flesh is most conspicuous, strength most resides. The muscles of the hind limbs spring from a

large bone, variously named in common parlance as the haunch-bone or the pelvic-bone. It is also spoken of by anatomists as the os innominata. This large bone joins the spine at the hips, and thus lends support to the posterior region. But the vertebræ, immediately before the hips, are aided by no such accessory. The loins stand alone, or are placed entirely without support. This part of the body merely consists of certain bones, over which and under which run thick layers or solid masses of muscular fiber.



THE BACK-BONE OF THE HORSE.

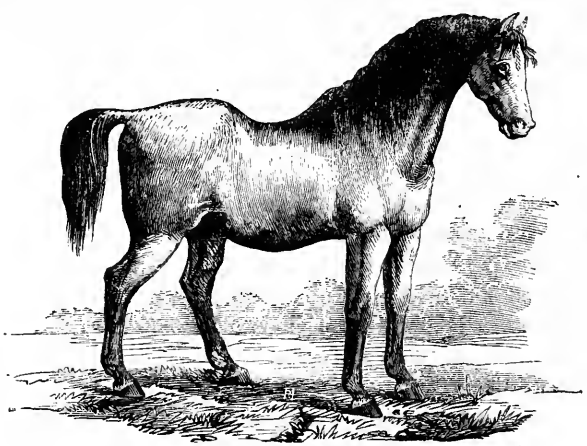
A thorough comprehension of the osseous weakness apparent in the skeleton of the loins must convince the reader of the absolute necessity which exists for some compensating agency, so as to fit the back for its burden. The loins therefore should be bulky or muscular. They cannot be too large; but may easily be the reverse. Small loins or weakly loins admit of no compensation. The author does not remember an instance where such a formation was not associated with mean quarters; whereas he does not recollect a case where size, in this region, was not evidence of general strength and of remarkable vigor. The position of the part is peculiar. It is intermediate and lies between the haunches, which are the propelling powers, and the thorax, which region is formed to endure, to support, or to uphold what the back carries. All intermediate structures demand strength; because such a position exposes the part to the full impulse of adjacent force, its office being simply to transmit that impetus which it directly receives. Accordingly, the development of the loins, both in man and in horse, may be cited as the best proof of the vital power which resides within the frame.

The loins, to evidence the transmitting office peculiar to this region, receive and convey onward the propelling force of the quarters. So, when the body is suddenly checked, the loins have to master the first energy of the onward impetus, or have to endure the full violence of the sudden arrestation of the forward motion in both the animal and its

burden. In the brief but dangerous feats of leaping, galloping, etc., the position of the region and the duties involved by it are so obvious, that the author cannot presume to dilate upon what appears to be self-evident.

Muscular loins are imperative in racers and in hunters. They should also characterize all saddle horses; for it is impossible the rider should be safely carried unless the back be strong. The animal designed for light-harness purposes can, perhaps, best dispense with such an essential, although even in that case the deficiency is very far from a recommendation; for weak loins are usually associated with a narrow chest, a lanky frame, and a total lack of every property which characterizes endurance.

In fact, every purchaser should first glance at this part; for here reside those proofs which the scientific mind and the practical judgment unite in esteeming. No matter what quality may be desired: be it strength or appearance, be it speed or endurance, breadth of loins is always important. Lumbar development is essential in all cases. In short, there is no property for the possession of which the quadruped can be valued that is not, more or less, and generally much more than in any degree less, dependent upon this portion of the frame for its exhibition.



A HOLLOW-BACKED HORSE.

The back-bone of the horse—lumbar bones and all—is often remarkable for very opposite developments which pervade its entire length. These are sinking down or curving inward, and rising up or arching outward. When the line declines more than usual, the form is denominated a "hollow back" or "a saddle back," and is generally supposed

to be indicative of dorsal debility. Animals of such a formation, however, commonly are possessed of high crests, of full loins, as well as lofty haunches, and they generally exhibit very proud action.

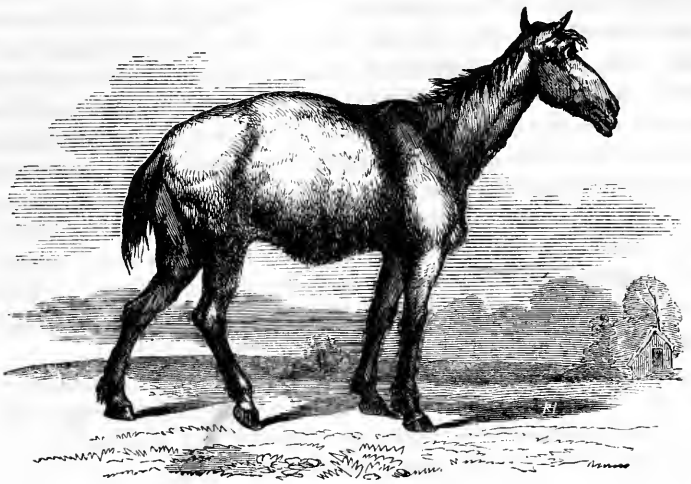
The late William Percivall, Esq., in his valuable work upon the action of the horse, alludes to a creature which displayed this peculiar formation, and nevertheless was an excellent hunter. Many readers will remember that the once fashionable Lord Petersham used to drive a quadruped of this description about London. His lordship's cabriolet could never stop, but a crowd of admirers immediately gathered about it. Animals thus shaped, notwithstanding the opinions of horsemen, are always highly regarded by the populace, and always afford a very elastic seat for the rider. Judging from inquiry, and guided by the reports of experience, the author—although such a make does not warrant an idea of any excessive strength—yet inclines to think that the decision which condemns it as symptomatic of extraordinary debility, needs further confirmation before it should be universally accepted.

Animals with hollow backs are usually conspicuous, even among the equine race, for many estimable qualities. They are generally very docile, and uncommonly good tempered. Putting the undue sinking of the spine out of the question, they display numerous excellent points; and, even admitting all that may be said about weakness, they exhibit such prominent good qualities as in many occupations may be justly esteemed more than an equivalent for their bodily deficiency,—especially when employed to carry a lady's saddle.

The very reverse of all that has been recorded above usually characterizes the "roach back." The author has hitherto found creatures thus made, distinguished for the absence of that power with which prejudice is inclined to invest them. Such animals are to be seen feeding upon the commons about Essex, being the pictures of checked development and the representatives of heartless neglect. The offsprings of aged dams or colts that have been forced to submit to early labor, every feature testifies to the abuse which they have undergone. Quadrupeds equally misshapen and equally neglected may frequently be seen dragging agricultural carts through the streets of London.

Such deformities are usually vicious and spiteful. They are capable of little exertion, and offer a seat of torture to the individual who is so unfortunate as to be mounted upon a roach back. Some years ago, the author chanced to dissect the body of a quadruped of this description. Death had not affected the upward protrusion of the spine, which retained its peculiar curve. The loins were very poor, and several of the lumbar bones were joined together by abnormal osseous deposit. The quarters were mean, the belly large, the withers low, the neck ewe-

shaped, the head big, and the legs long. In short, such horses are equally misshapen and mischievous. Any gentleman had better endure fatigue than accept such a creature for the companion of his journey.



A ROACH-BACKED HORSE.

My respected friend, Mr. Waller, informs me that he once had a "roach-backed" or a "hog-backed" mare which was remarkable for an ungainly aspect. But it had very large loins and an excellent barrel. It could draw a loaded gig fifty miles in one day, and, at the journey's end, go direct to the manger. Here malformation was compensated by the existence of other qualities; but the above example was not benefited by the "hog back," which must have interfered with its natural powers. The same gentleman bears testimony to an excellent hunter, of the above conformation, having likewise fallen under his observance. The animal, to be sure, used to "buck jump" its fences; or, in other words, it used to spring suddenly from the earth, without notice or preparation for the movement. It never gave the rider any warning of its intention by rising to its leap. Therefore the loins must have been defective, although the animal was endowed with extraordinary power, which alone could have enabled it to endure the frequent repetition of so unnatural a proceeding. However, the person who was seated, during a hard ride across country, on the top of a "roach back," and was indulged with numerous "buck jumps" during the morning's amusement, although he should invariably be the first in at the death, does by no means present to the author's mind an object deserving of any man's envy.

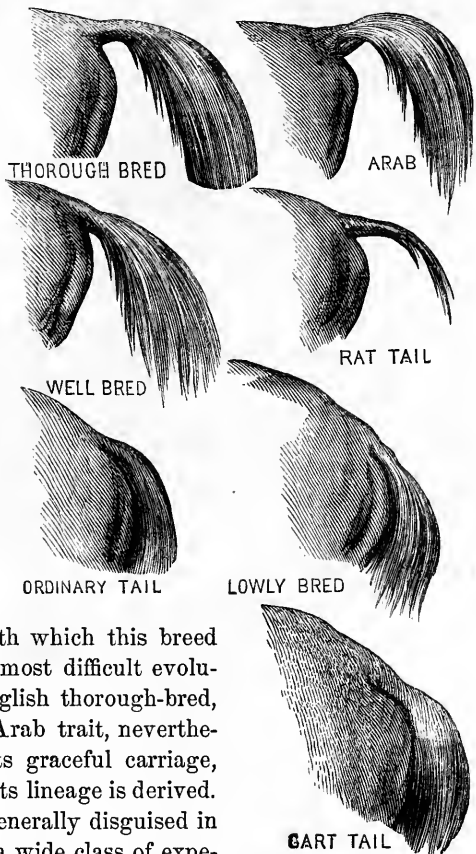
Neither a long nor a short backed horse is, necessarily, desirable. All depends upon the strength of those muscles which support the spine; though, all other points being equal, length generally provides a springy seat for the saddle: whereas a short back commonly possesses the greater endurance. A long back, having bulging loins, is, however, infinitely to be preferred to a short back, with deficient lumbar muscles. The mere extent of a part can be no absolute proof in either direction; though, should a choice lie between two carcasses, supposing each to be equally deficient or both to be equally favored, then the short back should be preferred, because all increase of length necessitates a greater strain upon the organs of support.

But the spine cannot be too long, supposing length to be accompanied by a proportionate excess of muscle; for length and strength of course increase speed. The practice, common among the vulgar, of placing the open hand upon the upper part of the abdomen to ascertain the distance of the last rib from the hip-bone, is a silly custom, and can prove nothing but the ignorance of those by whom it is exhibited. A living body should be judged as a whole. One part should be viewed in its relation to another development. No opinion on such a subject ought to be formed upon any solitary test or independent development.

When considering this portion of the subject, the author may be permitted to state, it is a disgrace to the intelligence of the present age that any cart should be built without springs. The weight and the uses of the vehicle are the reasons supposed to necessitate the custom. But reason perceives that the real question is, whether living thews and muscles shall endure the burden, or whether this shall be imposed upon inanimate metal? Reducing the matter to a calculation of pounds, shillings, and pence,—which is the cheaper? Which is the more delicate? Which is easier to repair, or the less costly to renew? Fact pronounces iron to be the answer to the foregoing questions; and sense also declares life has no right to be subjected to that unmitigated labor which Providence has provided a means to alleviate.

The tail is a continuation from the vertebræ. Therefore there is reason why a stout dock or a thick root to the tail should be regarded as a sign of excellence; because the part affords some evidence concerning the stoutness and the muscularity of the spine itself. Or, at all events, such testimony is the nearest approach to positive proof which circumstances permit reason to obtain. Nevertheless, it allows of nothing stronger than an inference; but the position of the tail is more decided. It should originate level with the prolonged line of the back, and should look the thing it is, a continuation of the spine; for, in this position, it necessitates a greater length in the posterior muscles of the haunch,

some of which extend from the last bone of the vertebræ almost to the hock. In a body whose power is dependent on contractility, of course length of substance favors the ability to shorten or to contract. In proof of this, animals with the tails "well set on" are commonly remarkable for speed and for activity.



The reader will perceive how much the aspect of the quarters is governed by the position of the tail, when he inspects the illustration which is here submitted to his examination.

The Arab naturally bears the tail erect; and by the rapidity of its motions, together with the power of the organ, an explanation is afforded of the ease and the grace with which this breed of horses can perform the most difficult evolutions. The tail of the English thorough-bred, without emphasizing the Arab trait, nevertheless, by its position and its graceful carriage, declares the origin whence its lineage is derived. A rat tail is a deformity generally disguised in large towns. There exist a wide class of experienced horsemen who assert they never knew a rat tail to spring from a bad body. Why baldness of a particular region should indicate general excellence, cannot be explained; but the author is not prepared to quote a single known exception to this all but universal prejudice, although it may be opposed to reason.

The vast majority of quadrupeds, however, are not conspicuous either for the carriage or the position of the tails. The dock, in the greater number, is compressed between the haunches. The filthy custom of nicking was intended to rectify this position. A portion of the depressor muscle was wantonly destroyed, which of course left the opposing agent with uncontrolled power. Such barbarity, assuredly, made the tail *stick*

out. But it injured its utility by damaging its activity. It, moreover, left the situation of the organ without amendment or made it more conspicuous. It was a silly practice, and is now, happily, all but discarded.

The reader, having had his attention directed to the subject, will probably be surprised to notice how seldom horses have tails well set on to their bodies. In short, the position of the tail, if employed as a test for excellence, would cause the majority of quadrupeds to be rejected. The tail, however, should always be observed, not as an absolute proof of the properties, but as suggestive of the breed. The cart horse exhibits a thick dock, which is not remarkable for activity. It has one peculiarity; this is, the extent to which the coat grows backward, or the manner in which the origin of the long hairs is deficient near to the haunch.

The head is the opposite to the tail. In the last, the spinal marrow is represented only by thread-like nerves. In the first, the center of all sense resides. The brain, with the bones that inclose it and the parts that surround it, constitutes no inconsiderable burden. Many structures aid in its support; but the general idea that it is upheld by the vertebræ, is no more than a popular error. The bones of the neck rather prevent the muscular force dragging the head backward, or limit the action of those agents, than actually support any portion of the weight. The ease and the grace with which a head, well set on, is carried, presents a beautiful object for contemplation; our admiration should be excited by a perception that, great as the weight may be, it is so exquisitely poised as to inflict no sense of oppression upon the creature. The chin can, without effort, almost repose upon the chest: the nostril, by the mere operation of the will, can be elevated to the breeze. The motions are equally varied, rapid, and incessant. Each inclination is directed by a purpose; and volition is exercised, without experience of the vast machinery by which the changes are accomplished, although the motions are as active as the power must be great by which they are directed.

The course of the body is, as was before stated, greatly governed by the position of the head. To the inexperienced, the freedom of this part may appear of little consequence; thus, ladies are well known to be the principal perpetuaters of the bearing-rein, although it has for ages been recognized that constant tension will destroy that sensibility of lip by which the course of the animal is now directed. The bit, operating upon a natural mouth, can sway the body during the topmost speed; for by the inclination of the head is the trunk to be rapidly turned.

It is therefore imperative, for the ease and safety of the rider or the driver, that the head should be well set on, and should be carried with-

out sensible restriction. Should the rein be held too tight and a false step be made, or should the foot be placed upon a rolling stone, the quadruped is almost certain to fall; for the rapid motion of the head being impossible, it cannot be used to restore the disturbed balance. The nimbleness which could avoid sudden danger is destroyed by the fashionable want of feeling. It is a matter for surprise that the presence of the bearing-rein is never alluded to when gentlemen seek redress because their vehicles have been damaged. Most horsemen, however, esteem the neck for its appearance, and few comprehend its utility.

Any person can discern the difference which characterizes the necks here represented. The galloway in front has a well-formed neck, although many pretended judges would object that it is too bulky.

THE FORM OF NECK GENERALLY INDICATES THE DISPOSITION OF A HORSE.

Bulk supposes the presence of muscle; therefore a neck, if properly shaped, cannot be too thick. The majority of the cervical motor agents extend either to the trunk or to the fore limbs. The size of the neck, consequently, influences other regions, and confers positive advantage of both strength and activity.

A head well set on is carried in advance of the body only so far as may be necessary to counteract the comparative lightness of the forward structures.

On the other hand, thinness and smallness of neck is one of the peculiar features of emaciation in the horse. It is always seen in the old and in the half-starved quadruped. Hence it may be inferred not to be a sign of vigor in any condition. The observation should be directed

to the balance, the ease, and the activity of the cervical region. As respects its bulk, the author never remembers to have beheld an animal with a neck too thick; though, he is sorry to confess, he has witnessed many of man's servitors with this part of the body most lamentably attenuated.

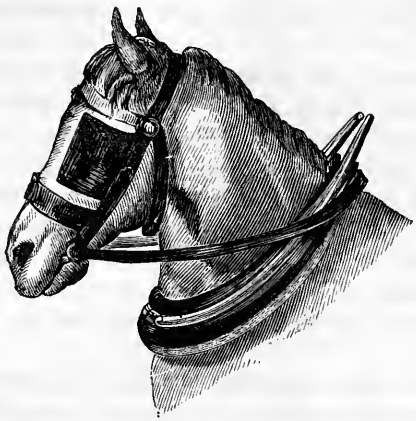
The second horse, in the foregoing illustration, has that form of neck which is commonly seen upon what are called "well bred" and "good horses." It is not incompatible with safety of pace; but it is deficient in beauty of outline or grace of carriage; and it cannot be fully equal to all the uses of a well-formed neck. The chin may be lowered; but it will be at the expense of an effort, and by the unscrupulous employment of the bit or the rein. Such a resort must inflict acute torture, especially as this particular kind of neck is rarely accompanied by breadth of channel or width of space between the branches of the lower jaw.

The inability to lower the head with ease, removes the eye from the ground, and exposes an animal to trip or to stumble, should any sudden inequality be present in the road. The second form is, therefore, preferable to the succeeding neck, which, though possessed of a more graceful crest, yet in the protrusion of the nose indicates that strain upon the muscular system by which progression is accomplished. No force, save that of mechanism, can possibly bring and hold down such a head. This defect exposes the animal to much suffering, renders it liable to fall, makes it very heavy in the hand, and speedily ruins the mouth.

The last horse exhibits the worst form of the group,—or it presents a long neck with the head pointing downward. Such an animal is never safe in harness; but is totally unsuited for the saddle. Creatures thus formed are commonly good tempered, but sluggish. This position of the head should to all, save only the totally inexperienced, characterize a deficiency of nervous energy; and likewise indicate the cost at which pace is maintained, and declare the uncertainty of foot. The neck should never be protruded, save during the exertion of the greatest speed. An animal which habitually assumes this attitude, suggests that an ordinary effort is felt to be a mighty tax upon its capabilities.

The following illustration exhibits a peculiarity of form which the author believes is confined to the heavier breed of draught horses. Such a neck is alone compatible with slowness of pace. It is, however, falsely imagined to denote excessive strength. So far as thickness is concerned, muscle must be present, or adipose tissue must abound; but in length there is a deficiency which necessarily will limit the amount of motor power. In justification of this opinion, may be quoted a well-known fact, that the huge mountains of flesh which

parade the streets of London before the brewers' drays, are not remarkable for a power of draught, for a capability of endurance, or for any length of existence.



A BULL NECK.

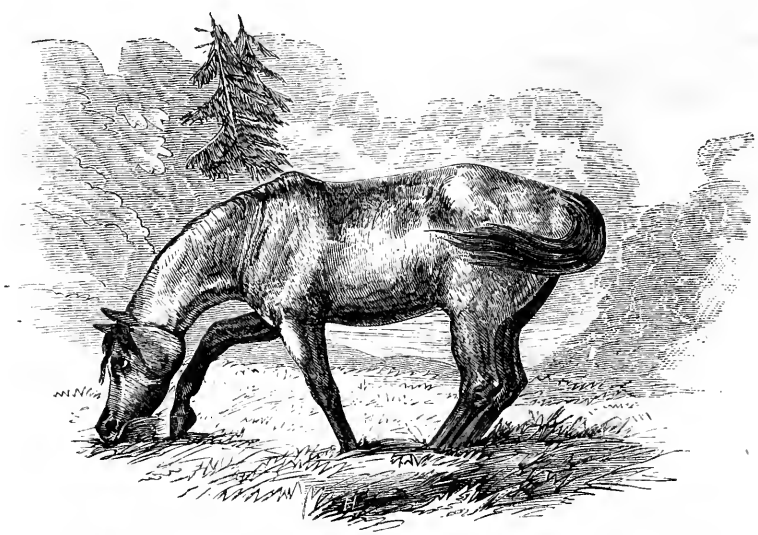
The ewe-necked horse is one in which every appearance of crest is absent. Such a form may possess length; but it is generally wanting both in depth and in substance. Animals of this formation are generally active, but weakly: other parts are too often characterized by a narrowness of build, which materially detracts from a capability for endurance

THE EWE NECK.

The appearance is, moreover, mean; this is usually rendered more conspicuous by a thinness and a shortness of mane. The shape of the

neck is not, however, to be considered only as governing other organs, but is also to be regarded as a consequence of a prevailing absence of development. So may the frequent accompaniment of a vicious disposition be viewed as the result of that feebleness which converts the easiest task into a mighty labor, and of that absence of beauty which can neither kindle the pride nor awaken the fondness of the owner.

Certain supposed judges are greatly prejudiced in favor of a short neck. The characteristic is in some minds associated with the presence of bodily strength; but it cannot be remarkable for denoting the existence of such a quality, because an absence of length must abbreviate the amount of muscular fiber. Shortness of neck, besides suggesting the presence of fat, and interfering with activity, unfits the animal for certain situations. A bull neck, although its possessor inhabited the most luxuriant pasture, would compel the creature to subsist on short commons. *Nags*, however long may be the legs, or short shall be their necks, generally manage to crop the grass, although to do so may cause a constant strain upon the limbs, thus counteracting one of those effects which the run is invariably supposed to realize. Below is inserted an illustration showing the artifice adopted by animals of this description.



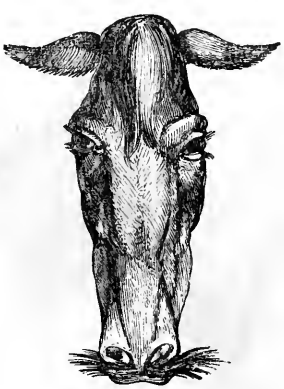
THE MANNER IN WHICH A SHORT-NECKED HORSE MANAGES TO FEED OFF THE GROUND.

Having noticed those portions of the spinal column in which the vertebræ are not associated with other bones, or do not enter into the forma-

tion of compound parts, it may assist the judgment of the reader if the relative importance of these regions is more particularly descanted upon.

However desirable an arched and lofty crest may be, it is not, when separately considered, any absolute proof of estimable properties. Conjoined with other points, it renders excellence more excellent; but, alone, no deduction should be drawn from it. In many parts of Germany, the horses exhibit beautifully formed necks, bearing luxuriant manes; but in other respects the quadrupeds are lanky, weak, and washy creatures. The dock deserves attention, although it can warrant no more than an inference. If it suggests that which other developments equally support, it constitutes a valuable accessory toward a sound opinion; but, by itself, it is of no importance. On the contrary, the loins are absolute proof: their swelling testimony may be trusted, should both neck and tail oppose their evidence. This portion of the body never deceives. It is worthy of all reliance: what it declares must be implicitly received. And, to many minds, it may appear the more deserving of estimation, because full loins are commonly accompanied by a stout dock.

Attached to the neck is the head, which, in the horse, always bespeaks those changes produced by varieties of treatment and difference of climate. The favorite and the companion of the semi-civilized Arab is, by its association with its master, elevated in intelligence as in beauty.



A LOW-BRED HORSE.

A WELL-BRED HORSE.

The agricultural teamster of this country exhibits, in its expression, the apathy with which it is regarded by its rustic attendant. These are, probably, the extremes of the race. That the reader may recognize the distinction between them, front views of both heads are above shown.

In the Arab, the spectator can hardly fail to remark the distance by

which the eyes are divided. The brow is equally characterized by its length as by its breadth, and constitutes no mean portion of the entire head. In the lowly-bred face, the region of the brain is comparatively small, its width presenting no obvious contrast to the other features. The nostrils are not only compressed, but their margins are thick; while the upper lip is adorned by a pair of abundant mustaches. Some animals the author has beheld with embellishments of this order which would not have disgraced the most hirsute of guardsmen.

The head of a well-bred horse has been frequently described as forming a straight line in its forward margin, when it is contemplated from the side. Such an assertion is generally true; but it must not be received as absolutely correct. Horses have been imported from Arabia with the craniums and the frontal sinuses considerably enlarged. Such a peculiarity is not esteemed a defect by the natives of the East. This fact is established by animals, thus characterized, having been sent to this country as presents for personages of exalted rank. Such developments may not strictly accord with English notions of equine beauty; but the size of the case, in some measure, denotes the magnitude of that which it contains. A large brain can be no detriment to any animal which is partly prized for its intelligence.

BULGING FRONTAL SINUSES.

A CART HORSE, WITH THE ROMAN NOSE.

Another peculiarity exhibited by a few English thorough-breds, is the Roman nose, or a prominence of the nasal bones. The trait is, however, less common in the pure Arabian blood than is the previous development. There is a breed of blood horses which exhibit a prominence of the nasal bones, or, in other words, present what is designated as the "Roman nose." This particular shape, however, is with the coarser

breeds far from unusual; although in animals of slow work it cannot be esteemed a beauty, it also should not be condemned as a huge defect. The depression of the nasal point may allow less freedom to the nostril; but in a creature whose kind of labor permits slow respiration to be employed, this constitutes no absolute objection; while many quadrupeds of this formation are conspicuous for their high courage and their lively disposition.

The leading or distinguishing characteristic of the thorough-bred horse is its superior intelligence. The stranger hardly has spoken to the creature, before it begins to investigate his personal appearance. It appears to appreciate the words addressed to it, and it responds to any act of kindness which may be lavished upon it. Added to this, is the evident neatness of its formation; the clearness of its various features; the grace as well as the lightness of its construction, united with speaking evidences of strength and of energy. The quadruped appears fit to be the associate of man, and almost seems upon an intellectual level with its master. As we contemplate the lustrous eye, and feel the rush of inquisitive breath, it is impossible not to credit the tales narrated of the creature's affection and of its generosity. We can then sympathize with the love of the Arab for his steed, and sensibly feel that life in the desert would be rendered less desolate by the presence of such a companion.

Yet this elegant quadruped is cast in no arbitrary mould. Its beauty admits of the same variety which is conspicuous in other animated bodies. The ears usually are small, and approximate toward their tips; but they may also be large, and the points may be even wider apart than the roots of the organs. Yet, in every shape, a thinness or a delicacy of the outer walls, a nice arrangement of the internal protecting hairs, together with a fineness in the investing coat, attest to the purity of the parental stock.

A tribe of lop-eared thorough-breds are known to exist upon the English course: this peculiarity, however, is not a distinguishing mark of purity of blood, or a characteristic running throughout the race. The fall of the ear exposes the interior of the organ to the eye of the spectator: that circumstance, no doubt, suggested the removal of the hairs which nature placed as guards before the opening. It is now a common practice, with almost every groom, to *singe* off these hairs with the flame of a candle. Such an agent cannot be safely intrusted to vulgar hands; probably to this foolish custom is owing the deafness which by horses is so frequently exhibited. Any protruding hair the scissors might excise; but as regards the interior of the ear, grooms, had they even a slight acquaintance with physiology, would know that the com-

mon Father was actuated by benevolence in all His ordinizations, and therefore hairs have their appointed uses.

GOOD AND ACTIVE EARS. LARGE EARS. EARS WIDE APART. LOW-BRED EARS.

With the ears no corporal excellence is connected, but with the health of this organ the general safety is associated; for the acuteness of the animal's hearing affords no mean protection to the rider. The absolute quietude of the ears indicates that sounds are powerless to excite the organ. Excessive restlessness of these parts suggests that by straining of one sense, the animal is endeavoring to recompense the obscurity of another: that the vision is either lost or imperfect. A lively carriage of the ears expresses a sprightly temper, and generally denotes a kind disposition; whereas one member constantly directed forward and the other backward, is a frequent sign of "vice," or of timidity in its watchfulness.

Near the ear is the seat of another special sense. Many people will pretend to discover the disposition of a horse by the character of the eyes. A restlessness of the globe, the display of any unusual quantity of white, and a perpetual tension on the upper lid are imagined to signify a "vicious" inclination; but, in reality, these traits express only the watchfulness of fear. Such indications are evidences of that suffering which has been experienced; and these traits are consonant with an anxiety to escape the future assaults of brutality. Despair may not be desirable as a companion; but it is not, therefore, to be falsely stigmatized.

A prominent eye, expressive of repose, and not exhibiting an abundance of white, has been pronounced to be declarative of honesty, though certain parties have condemned it as indicative of slothfulness. A quickness or activity, as contradistinguished from a restlessness in the visual organ, is, however, to be desired. The small eye usual with the coarser breed of animals should be avoided, because it is generally accompanied by a heaviness of movement. The retracted or deep-set eye, which displays the organ only partially, which is somewhat angular in figure, and which is commonly spoken of as "a pig-eye," denotes

either weakness of the part, or, to the majority of horsemen, will suggest a previous attack of specific ophthalmia. The disease, however, is not, in the author's opinion, hereditary, but is generated by that closeness of abode and that absence of ventilation to which all grooms strongly incline. The present writer has most frequently beheld ophthalmia in full and in perfect organs.

A WATCHFUL AND TIMID EYE. AN HONEST EYE. A LOW-BRED EYE. A DISEASED, OR PIG-EYE.

Before quitting the consideration of the face, it is imperative that the mouth and nostrils should be alluded to. In the well-bred horse, these are both large, when compared with the same developments in the animal of a coarser origin. The lips should be smooth, soft, compressed, and suggestive of energy; but they should be without the smallest aspect of ill temper. About them, numerous isolated and long hairs may be located; but there should be no accumulation resembling a mustache, or bearing even a distant likeness to a beard. Such growths are commonly removed by the scissors of the groom; but the palm of the hand, if placed against the muzzle, is certain to ascertain the truth if those things ever have been in existence.

LARGE MOUTH AND NOSTRIL OF A WELL-BRED HORSE. SMALL MOUTH AND NOSTRIL OF A LOW-BRED HORSE. THE MOUTH AND NOSTRIL OF AN OLD, DEJECTED, WELL-BRED HORSE.

The lowly-bred animal, being chiefly employed for slow uses, has not the need for those ample draughts of air which the faster speed necessitates should be rapidly respired; nor is the mouth declarative of the same determination which marks the lips of the purer blood. The bit is scarcely ever present upon the carter's harness, nor are the mouths of his charges formed to retain this invention. The characteristics of low birth cannot be effaced from the countenance of a quadruped. Age or

privation cannot confound the two breeds. The thorough-bred in ruin is not to be mistaken for the teamster. No want, no suffering, no length of years can obliterate the evidence of nobility from the animal of pure descent.

When purchasing a horse, it is always well to examine the angles of the lips. If any sign of induration is remarked, it signifies that the animal has suffered from the abuse of the bit. If on any limited space, however small, a patch of white skin is observed located upon a dark ground, it denotes that "once upon a time" the true skin has been removed from that place, while cicatrix now exists to apprise future purchasers of the fact. If anything like a hardened lump should be felt in this situation, it demonstrates that the quadruped has a hard mouth, and is an obstinate puller, or that it has passed through the hands of an unfeeling master.

In either case, the creature is not a desirable possession. Harshness is not a kindly educator, nor does it beget docility of spirit in the being which is subjected to its exactions. A hard mouth necessitates one of the severest trials which can be inflicted on a horse proprietor. It is painful, every time a change of direction is desired, for the rider to tug at the reins; such a necessity soon destroys every pleasure of the exercise. But a regular puller is always a dangerous servant. Generally it turns out to be a "bolter," and, before running away, will seize the bit between its teeth, when the driver or the rider alike is helpless. Our entreaty to the reader is, to turn his back upon the offer, should he ever be solicited to buy a horse having a damaged mouth.

At this point it is requisite the author should review the various organs which, together, constitute the head. An activity equally removed from stillness and from restlessness, denotes health to be present in all the seats of special sense. These things are of more importance than at first glance is apparent, because such united testimony is the best security as regards the general system. It equally testifies to the soundness of the brain and to the healthiness of the body. When the animal suffers, the perceptions mostly are inactive; when the brain is oppressed, the loss of sense first announces the disorder.

These organs also deserve attention for their own sakes. Man is not gifted with remarkable faculties either in seeing, in hearing, or in smelling. He therefore desires such assistance as the companion of his journey may afford. The value, consequently, of an animal is materially deteriorated by the loss of any of its protective powers. These, when all enjoyed in perfection, assist one another. When any organ is excited, the rest are seldom dormant. Thus when the quadruped perceives in the distance some obscure object, the ears are advanced and the nostrils

are inflated. The same general movement is remarked whenever the hearing catches a distant sound, or whenever the scent detects a novel odor. All are conjoined to produce one result; therefore the loss of one cannot be without effect upon the uniformity of action.

As regards the formation of the countenance, an enlarged cranium is no detriment; but the Roman nose sometimes interferes with the capacity of the nostril. When it produces such a result, the peculiarity warrants either a reduction of price or an absolute rejection of the offered sale. In other respects, this make is regarded as of no importance; but it certainly does not add to the appearance of the animal. Horses are generally prized in proportion to their beauty: nor can the author quarrel with such a foundation of judgment, as, in most animals, harmony of figure justifies a belief that excellence of spirit also exists.

The nostrils, however, are associated with the important function of respiration; therefore these organs demand consideration, when regarded apart from the other senses. They admit the air which is inhaled by the expansion of the chest; consequently the dimension of the nostrils allows an inference to be drawn as to the capacity of the lungs. This opinion, however, should be only advanced after the alteration has been noted between their size when at rest and their enlargement when excited. Should no marked variation be produced by the opposite states, then the value of the animal is only to be considered in connection with slow work, as the speed must be regulated by the capability of receiving a quantity of vital air proportioned to the power exerted.

After the capacity has been observed, the nature of the movements of the nasal openings should be noticed. Subsequent to exertion, ease of motion is not to be anticipated; but nothing approaching to spasmodic action should be remarked. The nostrils ought to be regularly expanded: not to fly open with a jerk, or to suddenly enlarge their form, as under the influence of a gasp. A capability of dilatation, attended with an evenness of motion, however fast the movement may be, are the points which should be looked for in the nostrils of a horse,—because the characteristic changes attending inhalation best expose any defect in the respiratory apparatus; for, by such a test, the remotest disposition to become a roarer, or to exhibit diseased wind, is easy of detection.

Connected with the head, every horseman comprehends how much width of channel, or of space between the branches of the lower jaw, is to be desired. The reason why such a form is highly prized in an animal of fleetness or of exertion, is because such an opening allows room for the varied movements necessary for the offices of respiration, or for the change of position imperative in the larynx, which is located near to or within the hollow thus provided. Clear space is of course impera-

tive, wherever rapidity of movement has to be executed. There is also another thing equally desirable. That addition is a full development of the motor power which affects the larynx.

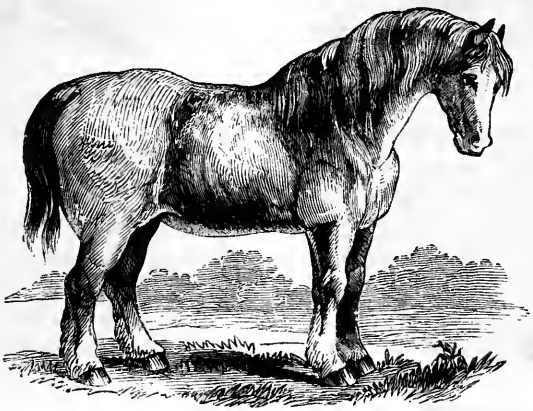
WIDE AND NARROW CHANNELS.

This last point has never been sought for, although the writer has seen it prominently exhibited in some animals. Wherever it has been beheld, the author has confidently pronounced the high character of the quadruped; he has not, in a single instance, been mistaken in his conclusion. The muscles which are attached to the spur process of os hyoides, or to the bone which regulates the movement of the larynx, when well developed, are discernible in the living animal. They form a kind of indication as though nature was half disposed to invest the animal with a

PROMINENT DEVELOPMENT OF THE HYOIDEAL MUSCLES.

miniature dew-lap. They lead the muscles of the neck perceptibly more forward than these agents run in the majority of horses, and in some specimens they may, with a little manipulation, be traced almost to the point of their insertion.

The muscles last alluded to all originate from the trunk, the more forward cavity of which is known as the chest. There is much dispute concerning the best form of the horse's thorax; but such a question can only be decided by the uses to which the animal is to be subservient. For instance, below is inserted the illustration of a cart horse with an almost circular chest. Such a form permits the presence of a huge pair of lungs, and favors the increase of weight.



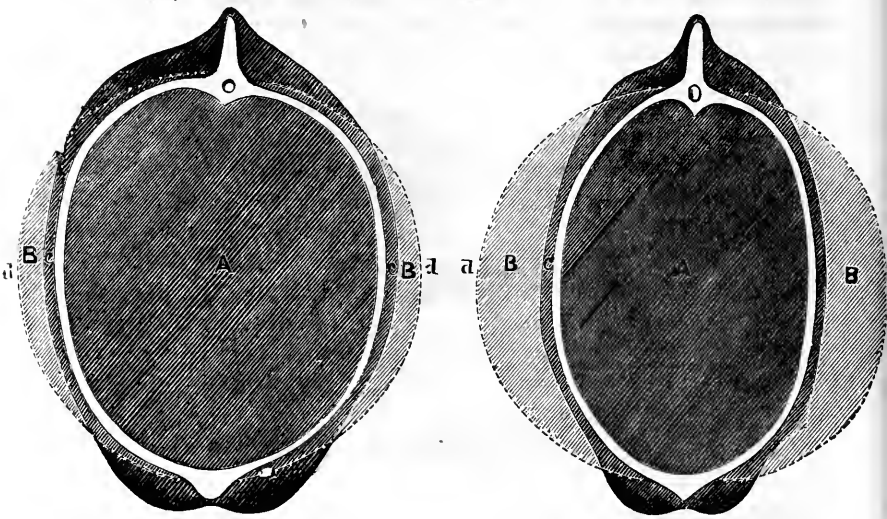
A CART HORSE.

Sufficient oxygen is always present to convert the starch or the sugar of the food into fat: during slow work, enough of atmosphere to vitalize the blood must be inhaled, nor is excessive exertion calculated to materially increase the amount. Where weight is more desired than activity, where propulsion is to be chiefly accomplished by bringing the heavy carcass to bear against the collar, such a make is admirable. All creatures, in which speed is not required, should possess circular chests; for by such a shape the quadrupeds are adapted for the accumulation of fat, and for the performance of slow, of continuous, or of laborious work.

There are, however, numerous animals which are required to possess capability for a "burst;" for the acme of which phrase is embodied in the rush or the closing struggle of the race-course. The creature of speed, therefore, should exhibit rather the deep than the round thorax; for fat is not desired on such an animal. The deep cavity, moreover, admits of an expansibility which is imperative during the extremity of muscular exertion. It is, however, sad to see well-bred animals in and about the metropolis forced to pull carts, for which employment nature has unfitted them. They possess no weight of body with which to move the load. The burden must be propelled by the almost unaided power

of the muscles. The limbs, strained by the constant necessity of the position, soon become crippled, while excessive labor causes the flesh to waste; hence the miserable objects which are sometimes witnessed toiling along the thoroughfares of the metropolis.

DIAGRAMS, ILLUSTRATING THE DIFFERENT CAPACITIES OF THE OPPOSITE FORMATIONS OF THORAX.



THE THORAX OF A CART HORSE. THE THORAX OF A BLOOD HORSE.

A A. The capacities of the two chests in the quiet condition.
B B, B B. The limits of expansibility in each, when excited.
c c, c c. The outside of the coat in the quiet condition.
d d, d d. The surface of the body in the excited state.

To render the above facts comprehensible to the generality of readers, let it be granted that the lungs of the cart and of the blood horse, when expanded to the uttermost, would occupy the like space. When not excited, or both being of the normal size, the respiratory apparatus of the coarser breed is by far the larger of the two. In the passive condition, the heavy quadruped inhales much more oxygen than is needed to vivify the blood. The excess is, therefore, appropriated by the food and nourishes the frame; hence dray horses have a tendency to become fat. On the contrary, in the ordinary mood, the lungs of the thorough-bred receive scarcely more air than is required to uphold vitality; therefore this kind of quadruped exhibits, as a general rule, no vast disposition toward excessive obesity.

During all quickened movements, however, the action of the lungs and the speed of the circulation are much increased. The impetus given by motion to the vital fluid causes the detention in the lungs to

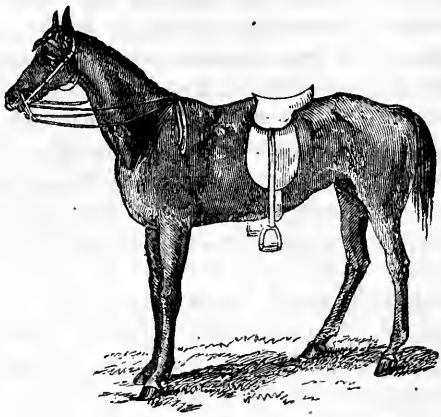
be of a comparatively brief duration. The period of change is shortened; at the same time a larger absorption of the vivifying agent becomes absolutely imperative. The greater depth of chest in the racer admits of a greater change of dimension; then air is inhaled equal to the rapidity of movement. The pace, therefore, can be maintained with comparative ease. But the round form of thorax allows of little enlargement: the demands made by exertion cannot be complied with, and the heavy horse, when hurried, is consequently soon exhausted.

It is not, therefore, the size or dimension of its thorax which fits the steed to the purposes of fleetness. That quality depends on the adaptability of the cavity to the exigencies of excitement; for such purposes, the quadruped with a round chest is not to be preferred. At present there is no instrument by which the motions of the horse's ribs can be accurately ascertained: thus the reader is forced to guess at an alteration which cannot, under existing circumstances, be regarded with that confidence which is inspired by the knowledge of a fact. A quarter of an inch between the enlargement of the ribs in different animals (supposing the other points equal) should more than determine the winner of a race, since the change which takes place in the blood regulates the other properties of vitality.

The belly and the chest are distinct cavities, although there is communication between the organs of each. Thus the great artery which originates at the heart, travels into the abdomen; while the veins which traverse the larger division also penetrate the thorax. Nevertheless, the contents and the uses of each space are generally distinct. The principal agents of the more forward cavity are the heart and the lungs, the thorax being chiefly sacred to the purposes of respiration and of circulation. The liver, the stomach, the spleen, and the intestines are inclosed within the abdomen, the function of this region being engrossed by the offices of appropriation or by those of nutrition.

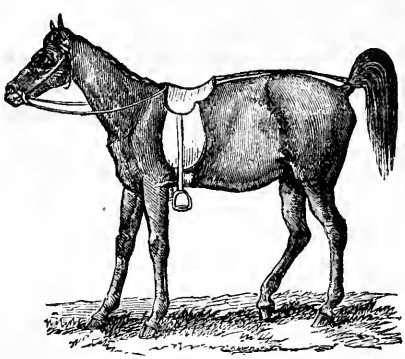
Most judges admire the horse which presents a belly apparently well filled by its contents. Certainly this appears to be the soundest of the many prejudices which appertain to horse flesh. The shape of the thorax must, in no unimportant degree, regulate that of the abdomen, the two cavities being only parted by a fleshy screen denominated the diaphragm. The herring-gutted quadruped is commonly as deficient in the respiratory as it is wanting in the nutritive functions. Of course this rule is not absolute; but a capacious thorax is required to counteract any absence in the process of nutrition. The animal which rapidly narrows toward the flank generally purges upon work, is commonly of a washy constitution, and usually possesses a bad appetite. Such a retainer will frequently spoil more fodder than it will consume; while the little eaten

shall afford less support than the like amount would yield unto the majority of stabled animals.



HERRING-GUTTED HORSE.

Horses of the above conformation are soon found wanting in other respects. Narrowing toward the flank being accompanied with deficient quarters, enables them to slip through their body-clothes, and renders it difficult to retain a saddle in its proper situation. The groom may in vain give extra attention to the fastenings; the dwindling form empowers little motion to displace the tightest of girths. The saddle always has an inclination to glide backward; and the rider, when such an occurrence happens, must be placed in no enviable position.



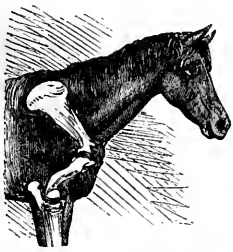
COW-BELLIED HORSE.

Objection even to a greater extent is engendered by the opposite kind of abdomen, or by one which is known as "a cow-belly," or "a pot-

belly." Animals of this make always seem immatured, as though they had been brought into the world before the proper period, or had been forced to perform hard labor at too early an age: their legs are long; their withers are low; their muscles are mean; their chests are narrow, and their countenances are distorted by a querulous expression. These unhappy creatures possess but little strength for work; if made to travel fast, they are speedily blown. In the stable, they are greedy; when out of it, they are vicious. Many of their faults are to be attributed to disease, the digestive functions being invariably disordered. They are worthless, or are "all too feeble" for harness; while the enlarged belly, when favored by the motion of the limbs, renders retention of a saddle an utter impossibility.

The legs of a horse,—these can hardly prove too short; for brevity of limb is always an accompaniment to depth of chest and proportionably powerful quarters. The long leg always attests to the light carcass; hence the motor agency of the limbs is deficient, while the cavities of respiration and of nutrition are necessarily diminished. A narrow thorax almost enforces low withers and an upright shoulder. The bone of the arm, or the humerus, is pushed into an undue slant by the forward position of the blade-bone, or of the scapula. This compels the front leg to stand too far under the body. Such an arrangement favors neither beauty, speed, nor safety; in fact, it is one of the worst forms which the components of the frame are capable of assuming.

The action of the shoulder-blade, during progression, is upward and backward, or it is drawn toward the highest processes of the withers. Low withers are, of course, opposed to extended motion in such a line. The lessened action of the bone necessarily limits the movement of the structures which depend from it, or the action of the humerus is governed by that of the shoulder-blade. The trivial motion permitted by low withers, therefore, limits the advance of the forearm, the parts being, as it were, tied together. The natural carriage of such a malformation is with the head and neck protruded, so as to favor progression by strain upon the cervical muscles. At the same time the body inclines forward, which throws the limbs backward, or out of their proper situations; and this circumstance accounts for animals of this particular make so frequently encountering "accidents."

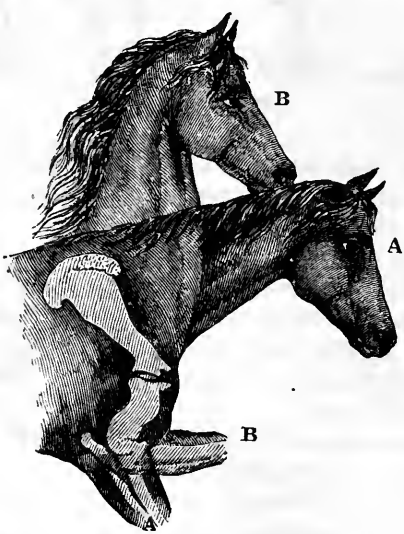


A STRAIGHT SHOULDER, SHOWING THE POSITION OF THE BONES.

The gait characteristic of an upright shoulder is very peculiar. A bad forehand is the most common defect witnessed in London thoroughfares.

In the metropolis of the world, it is indeed a rare sight to behold a carriage drawn by a pair of really good animals. The quadrupeds in general use for such purposes are mostly faulty about the shoulders. The forehand is placed upon the trunk in too upright a position. The job master is conscious of this defect. He always endeavors to convince his patrons that such a make is advantageous, where a creature is designed for harness. Possibly the tradesman might succeed in persuading his customers into a false belief, were not prejudice opposed to his suggestions. Ladies admire high action in the steeds attached to their vehicles; this is the kind of step which most of the horses just described are incapable of long exhibiting.

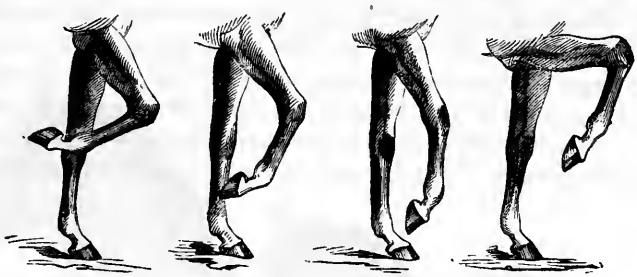
Art or cruelty, however, can partially amend the faulty motion of the limbs. Force the head into an unnatural attitude by the unscrupulous employment of the bit or of the bearing-rein; retain the neck erect, without regard to the cramp induced, or heed of the strain cast upon the muscles,—and the torture, although the life be shortened and the safety of the owner endangered, nevertheless may occasion the feet to be raised during progression. This fact is illustrated in the following engraving.



DIAGRAM, SHOWING THE NATURAL ACTION APPERTAINING TO A STRAIGHT SHOULDER, AND ALSO ILLUSTRATING THE CHANGE SOMETIMES OCCASIONED BY THE UNSCRUPULOUS EMPLOYMENT OF THE BIT OR OF THE BEARING-REIN.

The natural mode of going is indicated by the letters A A; the possible change of form is to be seen in the parts distinguished as B B, although the action there depicted certainly displays a most unusual degree of amendment, to induce which must shorten the existence.

Any such improvement is always procured at a vast personal risk; for the head, being raised, partially throws the eyes out of use. It also impedes the circulation, ruins the mouth, distorts the body, and deranges the breathing. All these evils are inflicted to obtain the kind of pace which is never natural, but which closely resembles the sort of step that is characteristic of blindness in the horse. Few of the animals, thus treated, live to descend very low in the scale of equine existence. They mostly perish young; but the reader may recognize them drawing the broughams of gentility, and too often presenting one of the cramped, forced, and uneasy paces which are depicted below; for into such kinds of action all upon service ultimately subside.



VERY FAULTY ACTIONS.

On the other hand, the animal with a deep chest and with high withers, almost as a necessary adjunct, possesses a slanting shoulder; or, at all events, this probability is favored by that particular formation. Such an arrangement of parts must be accompanied by an upright position of the humerus and the advanced location of the fore limb. This conformation is bettered, materially, by an arched crest and a head "well set on." Unfortunately, these latter points are seldom encountered, the proper disposition of the fore quarter being rarely attended with the last-named grace.

Such horses, however, Stubbs, the animal painter, used to delineate. Either the artist was particularly fortunate in his models, or beauty has been sacrificed in the anxiety to breed other properties. Such horses appear to have been common in England when the racer was compelled to possess endurance, and if report be truth, the last animals exhibited a greater speed than their descendants can display. Hunters were formerly something better than the rejected of the course; they could show a beauty equal to their strength. Creatures with the forehand such as has been described, are not only more pleasant to contemplate, but they are also capable of working with far less exhaustion to the system.

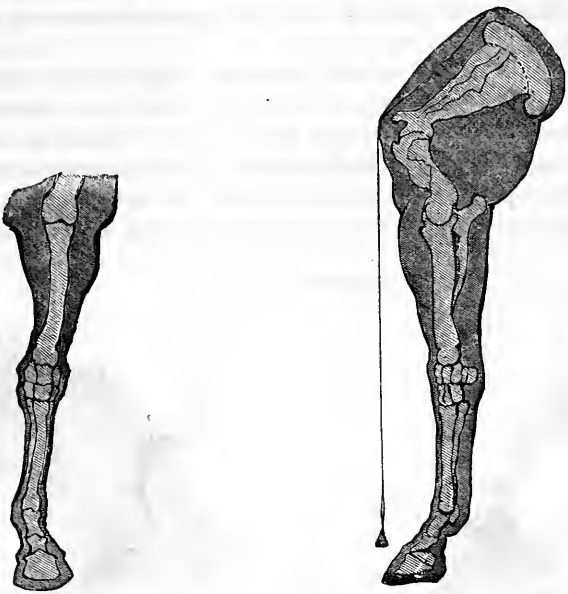
With a front limb of this nature, the movements of the leg are regulated by that of the shoulder. When the blade-bone is drawn upward, the humerus leaves its almost erect position, and assumes a forward inclination. This causes the arm to be advanced, and propels the leg and foot. Thus the movement of a part governs the motion of the whole: a grace or harmony of action is the result. The various components of the member change their relative positions to one another without effort, but with evident intention; all parts of the limb are simultaneously advanced. The work is not cast upon one set of muscles to the injury of another region. A well-made animal is one perfect whole, and formerly was common throughout the land. People may sigh that such quadrupeds are now lost to the nation: this regret, however, does not accord with the folly that upholds the racing mania, which has engulfed the once-prized native breed of English horses.

A SLANTING SHOULDER, SHOWING THE POSITION OF THE BONES.

A SLANTING SHOULDER IN ACTION.

The articulated skeletons which are exhibited in museums present but poor resemblances of the living framework as it is arranged by the hand of nature. In these artificial preparations, the fore limbs are always straight, as are the supports of a kitchen table. But contemplate the living example. The positive perpendicular is never observed. The member abounds in gracefully swelling prominences and admirably poised inclines. The chest may be wide; but the hoofs are placed close together. Such a necessity renders an erect line an impossibility. Try the same rule in another direction. Let a plummet be dropped from the point of the shoulder of a living and well-made animal; it will mark the

limit to which the toe is extended when the healthy horse is resting the limb. Such a fact proves the sheer upright form of the member to be an unnatural distortion and a positive impossibility.



DIAGRAMS OF BONES WITHIN THE HORSE'S FORELEG.

The importance of the shoulder and of the arm bone having been enlarged upon, there remains to direct the reader's attention toward that which in general acceptance constitutes the forearm, as well as the knee, the leg or the shin, the pastern and the foot. Where the limb quits the trunk, it should be characterized by muscular developments, since at this place resides the chief of that power by which the lower portions of the member are directed. The flesh should bulge forth, and cannot be too abundant; for a thin forearm is incompatible with goodness in a horse.

The point of the elbow should be prominently emphasized, as this bone affords a leverage whence many influential muscles originate, and which some of the principal flexor agents directly operate upon. Toward the knee the swelling should gradually subside, leaving upon the surface of the joint a broad, clean, and firm appearance. At the back of the knee there should stand forth, or rather should stick out, an osseous point, the size of which is of every value. Its aspect may not please the inexperienced fancies of the boy; but the uses of this development

are, in no little degree, governed by its magnitude. It affords a point of insertion to the short flexors of the limb, as well as gives shelter to the perforans and perforatus tendons in their passage toward the pastern and the foot. Its magnitude, therefore, not only favors muscular action, but also indicates the dimension of those important structures which this bone protects.

The forearm should be long; the shin ought to be comparatively short. The reach depends on the first, the length of which secures an extra amount of motor activity. No muscles of importance are located upon the shin: bone and tendon are the principal components of this region. The part should not be absolutely straight, for such a form is incompatible with all idea of living beauty; but at the same time it

INCLINATIONS OF THE PASTERNS.

A LONG AND SLANTING PASTERN.

A NATURAL PASTERN.

AN UPRIGHT PASTERN.

AN OVERSHOT PASTERN.

ought to present no obvious inequalities or sudden enlargements. The bone should be compact, giving to this portion of the limb, when viewed from the front, almost the appearance of being deficient in bulk; but when regarded from the side, the lower part of the leg cannot be too broad; for breadth and strength are here synonymous.

The above rule applies with equal stringency to both legs,—to the hind limb below the hock as well as the more forward member from the knee downward. Each should be thin, when viewed from the front. Neither can well be too deep, when seen from the side. Both should appear solid, and each should feel almost of metallic hardness. The pastern-joint should not present a level surface, when viewed laterally; and as it proceeds downward to join the foot, a graduated enlargement should exist.

Much comment is usually indulged upon the horse's pastern. The degree in which this part may or may not slope, has been authoritatively defined. The reader will best judge of these opinions, by considering the purposes for which the pastern was created. Its intention is to endow the tread with elasticity. The fetlock of a racer, when the animal trots, may be seen to touch the earth every time the weight rests upon the foot: nevertheless, the thorough-bred has, during the contention, to endure the very excess of action. There must, therefore, be something erroneous in the popular judgment which connects weakness with the motion of this part, or no racer could ever reach the goal; and if a quadruped does occasionally break down, the likelihood of such a misfortune is not regulated or to be foretold by the pliability of the pastern-joint. However, that the reader may estimate the value of the prejudice, various pasterns, designed according to the general phraseology, have been submitted to his inspection.

To enable the purchaser to arrive at a sound decision, it is necessary to state that the inclination of this region is governed by the major

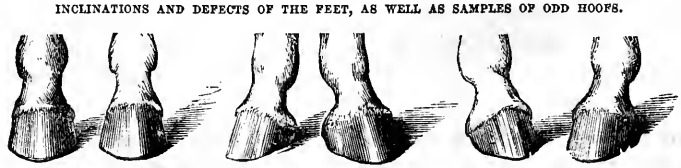
flexor tendons which are situated underneath or behind them. Their slanting, therefore, is regulated by no peculiarity in the forms of the bones themselves, but is controlled by and dependent upon the condition of another structure. A short, upright pastern, if it can bear any evidence at all, testifies to a stubborn and unyielding state of the great

flexor muscles, the weight being then thrown upon the osseous supports. The play of the pastern denotes nothing more than the healthy elasticity of the flesh upon the tendon proper to which the osseous structures repose. The bones have no motor power belonging to themselves. The upright and the overshot pastern suggest no change in the more solid frame; but such alterations prove that excessive work has strained the great flexors of the limb, and destroyed the inherent property of elasticity with which every muscle is endowed by nature. The burden being then supported by an osseous pillar instead of an elastic band, of course jar or concussion ensues upon the abnormal change.

Thus, alteration in the natural position of an oblique bone is of great importance to a purchaser; and to judge properly of the pastern-joint, the substance swelling forth beneath the elbow must be regarded. Should this portion of the body be mean or wanting in development, hard work will probably induce it to become rigid, or labor may, ultimately, cause the pastern-joint to shoot forward and out of its proper situation.

The flexor tendon likewise influences another part. The perforans is inserted into the sole of the coffin-bone, or into the bone of the foot. The direction in which the toes point is, therefore, regulated by a substance so far distant that the attempt to connect the two organs may, to the uninformed mind, seem somewhat ridiculous. Yet, the statement being correct, the fact renders the position of the elbow of more importance; for according to the situation of that bone the hoofs will be directed. Thus, an ulna or an elbow which is drawn toward the trunk will be attended with a toe inclined outward. When the bone turns from the body, the forward portion of the hoof is directed inward. When the framework is properly constructed, the hoofs point forward; for horses' hoofs are liable to those derangements which the human foot exhibits, and generally with like results. Only, in man, striking one leg against the other, during progression, is not attended with the unfortunate consequences which such an occurrence often will induce when this accident happens to the quadruped.

INCLINATIONS AND DEFECTS OF THE FEET, AS WELL AS SAMPLES OF ODD HOOFS.



HOOFS POINTING FORWARD. HOOFS POINTING OUTWARD. HOOFS POINTING INWARD.

By the pasterns recently exhibited it will have been observed that the inclination of the bones influences the slant of the hoof. The two

structures are so connected one with the other that neither can be independent, for the direction of the pastern, of course, determines the nature of the weight imposed upon the foot. Thus, should the foot receive more than a normal pressure, this circumstance, by throwing the weight upon the bones, occasions the muscles to contract, and produces upright or overshot fetlock-joint. Nevertheless, the hoof is operated upon by other agency. Diseased action will also interfere with the growth of its outward covering. The member may, under such injurious excitement, when long continued, eventually become deformed.

The place of birth also influences the horn. Thus, a quadruped brought up on the fens of Lincolnshire, generally displays a flat sole, a weak, a low, and a slanting crust. The horse whose native land is dry or sandy, mostly exhibits the hoof high in the quarter and thick in its incasement. The creature with feet of the intermediate sort, which a few years ago were esteemed the model form, is generally the inhabitant of a moist, but not of a wet district. The horn, therefore, is indirect evidence of the rearing; and the author has now to consider how far its condition can, by itself, be regarded as a positive proof of any other fact.

There is one defect not generally observed, but which should always be studied in every examination of the feet. It may surprise the reader, when the author declares it to be very far from an uncommon circumstance to encounter a horse with odd hoofs, or with feet of different sizes. Such a peculiarity is totally independent of the defective inclination of the toes, and may be seen in horn of any possible condition, or in feet of any variety of form.

An animal becomes lame in the foot. If the lameness is removed in reasonable time, the affection disappears, and leaves no trace behind it. But let it continue for months, and during such a period the sufferer will throw little or no weight upon the diseased member. The part will be rested. The purpose or function of the organ will be counteracted by the will of the animal. The consequence of long disuse will be a proportionate decrease in size. Upon recovery, the loss of bulk is seldom restored; for if the foot is then employed, so also is the sound one; and the action being equal, of course it does not particularly affect one extremity, but operates on both alike.

The difference in the feet may not be so startling as to enforce attention to the deformity. It is seldom of this nature. Most probably it will require some discrimination to detect it. In the last engraving, the author endeavored to depict the defect as it was generally exhibited. None of the hoofs there delineated positively match, though very probably the reader had not remarked their differences. However, the slightest disagreement is an accepted proof that disease has been pres-

ent,—at what time, whether recently or long ago, of what nature, whether structural or functional, the examiner cannot tell: he, however, assumes lameness has existed, has endured for some period, and he fears that the organ which has been afflicted may retain a liability to repeated visitations of a similar misfortune.

The so-called model foot is very liable to change, and not less likely to exhibit disease. It is very pretty to look at; but it does not, as a rule, undergo much work without alteration. This opinion, however, must be regarded only as announcing a general law; for though the intelligent Mr. Bracy Clarke puts forth engravings illustrative of the effects which work produces upon the model foot, nevertheless the writer of the present volume has seen hoofs of this description which have, without apparent injury, endured constant shoeing, as well as perpetual battering upon the dreaded London pavement.

The slanting crust, weak heels, and low soles are, however, not to be commended. These are among the worst points which the equine form can present, and they are too commonly the forerunners of sad internal disease, as ossified cartilages, sand crack, pumice foot, etc.

After long reflection, the author must express a preference for the high or the stubborn hoof. When doing this, he is consciously opposing his unsupported opinion against the firmly and repeatedly expressed judgment of his professional brethren. He therefore can ask no man to agree with his decision; but he humbly requests the reader to peruse the grounds of his conviction, before hastily condemning its declaration.

The horse is a native of a dry and an arid soil. Such a region induces that which the inhabitants of this country stigmatize as an excess of horn or an abnormally high sole. This kind of hoof therefore would appear to be natural to the animal: at all events, such a foot must have been general before the invention of iron shoes. Moreover, when the immense weight of the creature's carcass is considered, and the manner in which bearing is increased by speed is also properly regarded, a necessity for the stoutest hoof must be fully apparent.

In addition to the above inferences, the author may advance his own observation, carefully made through a number of years: that all animals exhibiting strong crusts are not, necessarily, cripples; but that the creature with such a development of horn is in consequence less, infinitely less, liable to pedal derangements. The contrary conclusion has been upheld, because most men thought the excess of horn must check expansion, and also severely pinch the internal structures. With regard to the last deduction, all outward developments are produced by and are governed by the inward organs which these shelter. The secreting member may be soft, and the secreted substance may be hard; still, by

a wise provision of nature, the tender structure rules the insensitive material which it produces. Therefore the horn cannot press upon or pinch the internal portions of the foot, any more than the skull can compress the healthy brain which it protects.

Then as to the supposed want of expansibility. The hoof may appear stubborn when between the human fingers; but while supporting the body of a horse, it is exposed to the operation of a force altogether greater than any which man is able to exert. The question therefore is not whether the hoof is very yielding, but whether it is so obdurate as to resist the huge weight of the animal when aiding the mechanical force of speed and the vital action of muscular power.

The author, however, while making the above declaration, supposes form to be united with stoutness. Where the heels have become "wired in," and the crust has assumed the upright figure, the internal structures must be in an altered condition, and the points of bearing for the different portions of the limb must be entirely changed. The quarters in the last kind of foot are, frequently, remarkably stubborn. They are rather inclined to crack than to expand. Such parts will not, by their innate elasticity, fly inward on the leg being raised from the ground, and thus regulate the amount of blood which shall be poured into the hoof; neither will they expand when the weight is cast upon the foot, and thus allow free egress to the current which is violently expelled in consequence of the superimposed burden driving the fluid upward.

The upright hoof and narrow heels are, generally, all but unyielding. They have lost their natural function, and the harmony of the whole is destroyed. In consequence, the blood, instead of being expelled from the hoof, cannot escape from the pressure of the bony structures. The vessels within which the fluid circulates are not formed to sustain uninjured so vast a burden. They rupture under the weight; hence this peculiar form of foot is commonly accompanied with corns. Therefore, because corns are a disease, and because disease, being once generated, is not in its course or duration to be prognosticated with certainty, an upright hoof and wired in quarters are decided unsoundness: although stoutness, simply considered, is rather a recommendation than a defect.

The author may not dwell at greater length on this portion of his subject; but those who desire further information may with advantage consult Miles's works upon the horse's foot, which are the best, the cheapest, and the most lucid books upon this topic in the English language. They are written in a style which the most unlettered may comprehend; but when recommending them, the author, in his own justification, may state that the views therein expressed frequently differ from those opinions which are contained in the present volume.

Looking back upon such portions of the frame as have formed the subject of the late remarks, there are certain points which are invariably present in every well-made animal. A very broad, full chest is advantageous for slow work; but for slow work only. Where speed or activity is desired, depth of thorax is indispensable; yet the cavity should not be narrow or the sides flat; while the exterior of the ribs should apparently encircle sufficient space. The general contour should, moreover, excite no idea of fixedness: the part should convey a notion of its capability for easy and for rapid alteration of magnitude.

The abdomen should neither be large nor small. The exhibition of either failing announces a radical defect. The belly ought rather to gracefully continue the line of the chest, than by its protuberance, or the reverse, to enforce its existence specially upon the notice of the spectator. All may be considered right when the form elicits no remark; but when it challenges observation, the fact does not indicate that everything is as the purchaser could desire.

The position and the muscularity of the shoulder are the main points in the forehand. With respect to the limbs, these should leave the body as though they were parts of its substance. They can hardly be too large where they emerge from the trunk; and the forearm can scarcely be too long. The knee-joint should be broad and flat; while the bone which projects forth posteriorly should be well pronounced and evenly situated. The shin should be hard to the touch, and broad, when viewed laterally. The leg should seem straight and strong; the feet standing close together, and the toes pointing in a forward direction, rather than inclining to the outward or to the inward direction.

Such is a general view of organs, all of which are of equal importance. Breathing and digestion are such vital functions, it would be supererogation did the author pretend to point out *their* importance. It may be otherwise with the fore limbs. Their use is not popularly comprehended; those members are exposed to numerous accidents and liable to many diseases. This predisposition is generally explained, by saying they are nearer to the heart than the hind legs are, and the straighter form is more favorable to a descent of the arterial current than is the angularity of the posterior extremities; therefore this portion of the frame is more open to acute affections.

The facts stated are certainly correct. So is the less freedom allowed to the forelegs, by confinement in and fastening the head to a manger in a stall. Such, however, is not the whole truth. There are other causes in operation. The province of the fore limb is to uphold the trunk. Thus, at all times, the member has to support no inconsiderable burden; but when that load is increased by the weight of a rider or is augmented

by the drag of the collar, the tug of the shafts, and the generally pend ent position of the head, the reader may conjecture the force with which the limb must be driven to the earth, especially during any rapid increase of motion.

The continued battering to which the leg is subjected naturally exposes it to much suffering, which the comparative fixedness in the stable greatly aggravates. As the uses are severe, so are its afflictions painful; and it hazards nothing to assert that very much of the sorrow which visits the animal is dependent upon the diseases or the accidents which are inseparable from these forward supports of the body and of the load.

When, however, the person called upon to exercise a judgment in the purchase of a nag is so new to the subject as to be incapable of forming an opinion, there is one primary test which seldom deceives; and upon the evidence thus evolved the merest tyro is fully qualified to pronounce. Let such a man mount the animal, and, when seated in the saddle, he can surely decide whether he appears to be close upon the neck or placed far behind upon the back. A well-made animal, by the inclination of the shoulder and by the amplitude of the withers, forbids the forward location of its rider; whereas a worthless quadruped, by the lowness of the first dorsal spines and the upright position of the bladebones, allows the rider almost to rest upon its neck—thereby, because of the greater weight to be supported by the front limbs, increasing the natural liability of the forward members to exhibit disease.

The reason why such a formation should be specially noticed is, upon reflection, made apparent. The hind legs, by their greater motor power, always have a disposition to throw the weight upon the forward member. When this tendency is augmented by the burden on the back, the consequence must be a destruction of any approach to an equilibrium.

The horse's body is, by nature, given four props—one at each corner of the trunk. But when a human load is lodged almost over the fore limb; when the front leg is placed far behind the chest; and when the head swings in advance,—all approach to a proportionate amount of burden is destroyed. The forward extremities then take a position almost in the middle of the substance, a proportionate incumbrance being removed from the posterior extremities. The hind members have less to do, and excessive duty is imposed upon the weaker organs, the motor machine being deprived of safety during progression.

While on the back, the rider should ascertain the shoulders are of equal bulk, or have not suffered injury, and that the trunk is sufficiently developed to afford a secure grip for the thighs of the master. Many animals are so narrow as to necessitate sensible muscular exertion on the part of an equestrian, and thus materially to detract from the pleasure

of horse exercise. This matter is the more important, because stoutness of the body allows a fair inference to be drawn as to the substance of the haunches. It is true, no absolute law may therefrom be deduced; but as expectation is warranted, the fact should always be remarked

A RIDER HAVING PLENTY BEFORE HIM WHEN IN THE SADDLE.

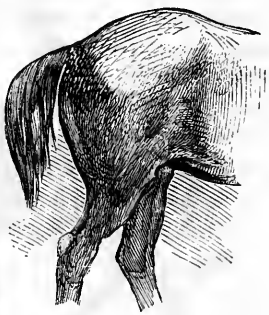
A RIDER CLOSE ON THE NECK WHEN IN THE SADDLE.

The haunch is that portion of the frame upon which a capability for work is chiefly dependent. This region, therefore, should appear to be the embodiment of strength. It should not seem soft, or invite those pats which inexperienced horsemen are fond of administering to this portion of the body, but the aspect ought rather to suggest firmness and power; for here resides the force which must propel the load or direct the bound. Always choose an animal with good haunches, and invariably regard the position of the tail; as the situation of the dock, when on a line with the back-bone, denotes the greatest possible length, and therefore the largest amount of muscular activity to be present.

Never purchase a horse which is recommended as fully equal to carry your weight; for the dealer who asserts this is, by his interest in the sale, incapacitated from forming a just opinion. But ostensibly appear to seek a horse for a friend—never for yourself—and state the nominal owner to ride at least four if not six stone heavier than the would-be purchaser. There is a saying, that an animal will run away with too light a load; but that assertion is mere nonsense. Most vicious quadrupeds are weakly creatures. The powerful frame is generally united to an even temper. Strength does not endanger the female equestrian, although ladies generally are mounted upon the best-made, the strongest, and the most valuable steeds. Indeed, this argument is never urged, save when a gentleman hesitates to accept a weakly quadruped, or

desires to obtain the one which the dealer is not very anxious should be purchased.

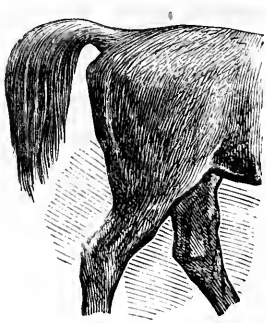
In illustration of this subject an engraving is inserted, which represents better-made quarters than are commonly beheld on a native or coarsely-bred animal. But the reader can hardly fail to remark that though the developments are not deficient in width, yet the general aspect rather denotes softness than expresses strength or suggests determination. The tail is well set on for this kind of quadruped; still, the point of the rump-bone is not even indicated. The spectator must guess at its precise location, as he cannot, by the unaided vision, detect its exact situation. Bulk is not absent, yet that which should be its attendant is not prominent. The bones of the leg seem long, but the hocks are not remarkable for size or conspicuous for form. The limbs are not moved with that independence of action which gives to the step of the horse its air of resolution, but they are advanced as though one was timid of proceeding too far without the other.



A COARSE-BRED HAUNCH.

Yet, the inquirer may journey long and travel far before he will meet the equal of the quarters here depicted. The generality of these parts, on the animals of the coarser breed, are much narrower; the tail is seldom encountered springing from a position so near to the level of the spine; while, short as the extent of the posterior muscles may appear in the previous illustration, these are frequently to be seen of more circumscribed dimensions.

In contrast to the foregoing, the accompanying engraving depicts the quarters of a blood horse. In this illustration, symmetry and beauty are equally preserved; but, with these qualities, also are blended other attributes, which ennoble and elevate the object. Strength, power, and determination are impressed upon the image. Every muscle goes direct to the part on which it operates. The posterior line, on being traced from the dock to the leg, does not seem to hesitate between the bone of the member and the stifle-joint. The leg itself is thicker, but its greater substance depends upon the presence of muscle. The hock is cleaner, and uses of the part are better



A THOROUGH-BRED HAUNCH.

characterized. The calcis, as the backward projection is technically termed, stands forth prominently and affords the greater leverage for the motor agents to act upon.

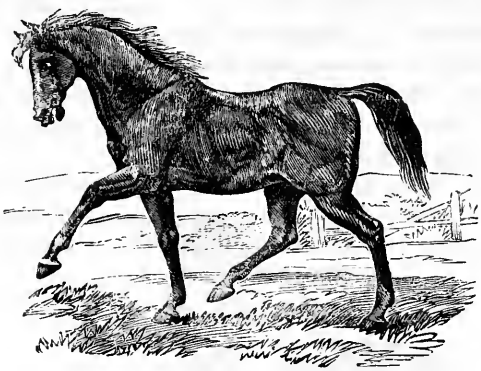
When the quarters of the two breeds are contrasted, the difference is found to be extreme; the pervading attributes of each characterizes the innate qualities of the animal to which the part belonged. The distinctions which divide the two are by these members well indicated. There was, some time back, a loud discussion as to what kind of horse was best fitted for ordinary purposes. The old staging days should have settled such a question; for then fast coaches found the employment of the nobler quadrupeds to their interest. Where slow and heavy propulsion is desired, the coarser animal is infinitely to be preferred. For all the gentler purposes of society, the thorough-bred is, in the author's opinion, to be recommended. Only, these fine creatures should be properly reared; they ought not, as now, to be produced with all the haste of greed, and cast upon the general public when found unsuited to the purposes for which they were generated.

It is offensive, if not painful, to hear persons speak of certain horses as though particular quadrupeds were created only for special uses. A good horse is fit for nearly every purpose; but such an animal is generally employed for the saddle. A thorough-bred, with lofty and well-developed quarters, is too valuable not to be appropriated by the race-course. A blood, with so much bulk and stoutness as to indicate the qualities of endurance rather than of speed, is always destined to become a hunter. Horses of the purer breed are supposed not well suited for gentlemen's hacks. Good animals of this description are only too valuable for common purposes; but no creature is, by its intelligence, its activity, its gracefulness or its beauty, so admirably qualified for the companionship of man as the noblest type of the equine race.

The manner in which the racer trots is asserted to express the action which is natural to all of the thorough-breed. Before the reader agrees to that assertion, he should remember the trot is not a natural pace, nor one which the racer is broken to exhibit. Seen upon the course, the foot evidently moves too near the earth to clear the ruts of most English highways. Yet, as there shown, the motion is not to be despised. During it, at each step the limbs are extended; the reach is admirable, and affords a far better foundation for excellence in a hack than the up-and-down pounding motion which is so highly esteemed by the ignorant.

The greatest possible speed, with the least possible amount of exertion, is secured by the thorough-bred trot. The ground is covered, while the pace is easy and pleasant to the rider. It is very opposite to that

which medical gentlemen occasionally recommend as a "hard-trotting horse." A child might sit upon the back of a well-bred steed. The author recollects to have only seen one animal of this description employed as the riding companion of a gentleman. The master (a northern nobleman) was evidently proud of his possession; for the hack abounded in energy and with fire. The life never appeared fresher in a colt; but, on inspecting the teeth, the writer was pleasantly surprised to behold indications which denoted that at least twelve years had been passed. The following illustration will suggest to the inexperienced reader the more striking peculiarities which characterize the well-bred action.



A HACK.

Any quadruped is supposed suited for the collar when it displays points which unfit it for the saddle. A prime saddle horse, however, always makes the best harness animal; only, it is considered too valuable for such a purpose. There is but one law which is absolute with draught horses. In them, the forelegs are pardoned a few faults; but the hind quarters should always be powerful. That is desirable in all quadrupeds; for draught of every kind it is essential; it should never be overlooked, or the want of such a property ever be pardoned.

There is another point of importance. Any gentleman purchasing a draught horse—no matter whether for cart, for carriage, or for phaeton—be it for any kind of vehicle, he should be certain, before the transfer is concluded, that the new possession stands high enough. Nothing looks worse than small horses before a tall carriage. The living power may be in excess—it can hardly appear too mighty—but an inch below the requisite size gives to the most elegant and the newest of "turn outs" a shabby and a mean appearance. The draught may be light; the horses may not be overweighted; still, no fact or knowledge can

reconcile the eye to the general effect, where animals are small for the machine to which they are harnessed.

Of recent years there has been displayed a desire to infuse the Eastern blood into the heavier breed which is native to this country. The desire was commendable; but its gratification has led only to evil. It has enabled the dregs of the race-course to be palmed off upon the public. A thin and lanky offshoot of thorough-bred stock can be of no value. These things should not be bought by gentlemen for any kind of service. The time has come, when it is simple prudence that the public should refuse longer to absorb the cast-offs of the stud farm. No doubt, before the breeding of blood stock became a general practice, the infusion of Eastern fire and activity was a national boon; for a reference to engravings of a few years back exhibits the animal suited only for a plow used as ladies' palfreys. The following copy from a figure, presented in the famous folio work by a former Duke of Newcastle, will give the reader some notion of the kind of horse once chosen to carry the fairest portion of creation in the British isles.

LADY, HAWKING.

From the above illustration, which may be well supposed to embody the height of fashion and the cream of style shortly after the accession of Charles the Second, the reader can imagine the practical knowledge

possessed by those writers who speak of James the First as having greatly improved the *native* breed of horses, and quote the benefits conferred upon the national race by the more temperate but equally determined enthusiasm of Cromwell, operating in the same direction.

At this place, the reader must have patience while the method of judging the limbs is pointed out. When the dealer exhibits an animal, the customer's eye always should endeavor to ascertain the bulk or substance of the creature which he is expected to purchase. To do this, let the eye be directed toward the chest, to ascertain if the forelegs are separated by any breadth of thorax, or whether they spring from the body almost from the same point. This decided, a glance may be given to the line of the forelegs; these parts also can be viewed as the gentleman passes backward. Having reached the last situation, he observes if the thighs are large and fleshy, keeping the legs well asunder; also, whether the hocks are rightly placed, are huge, and are cleanly shaped.

Such remarks are important, since the disposition to cut is generally decided by the width of the horse's trunk. Any deficiency in this respect indicates weakness, as well as declares a general unfitness for severe labor. This circumstance being observed, it is usual for the horse to be run up and down the ride. While the limbs are in motion, the spectator should notice the peculiarities of their carriage. A flexion of the front shin to the outer side warrants a belief in the existence of a splint. When the hind limb is not properly flexed, but the toe is allowed to graze the ground, it is a positive proof that the hock is disabled by the presence of a spavin.

A worse evil, however, is, when the forelegs, during progression, crossing each other, the trot becomes a sort of "hand-over-hand" pace. This kind of action is accompanied by "speedy cut," or by a wound made upon one leg, immediately below the knee, with the shoe on the opposite foot. That defect justifies an instant rejection; for such a liability is incompatible with safety, as the blow too often brings the animal and its rider to the earth. The legs being close is the cause of "brushing" or of "cutting,"—a most troublesome defect, which inflicts a wound considerably nearer to the ground than speedy cut.

Before purchase, the hair on the inner side of the legs should be carefully examined. If a cicatrix or a bare spot is discovered near to the seat of cutting; if any paint or coloring matter can be detected upon the part; or if the hair does not lie perfectly smooth upon the place of injury,—have nothing to do with the animal. It is quite true that most fresh and nearly all young horses will cut—others strike only toward the end of a long journey; but it is also true that particular horses, how-

ever fresh or however tired they may be, never strike or cut. The quadruped which a gentleman desires, is one that does not contain evidences of a liability to accident or to disease. He wishes for a sound

AN EXAGGERATED VIEW OF A WEAK ANIMAL, WITH DANGEROUS ACTION.

animal; and one disposed to strike certainly cannot, in the author's opinion, be so esteemed. Every man wants a horse for service; but the creature which may at any moment receive a wound that shall incapacitate, assuredly cannot be esteemed a serviceable possession, in any meaning of the words.

While examining the legs, the gentleman should also notice the shoes upon the different feet. If these are rusty, the fact demonstrates that the horse has been wearing wet swabs, and has been long stationary in the stable. The circumstance is suspicious. In horse dealing a justifiable suspicion is always acted upon as an established fact. If the shoes are of rude make and much worn, it looks badly; and though it is no recommendation, it justifies no inference. But if the shoes be thicker at

one part than at another; if the horse, being a nag, should wear very high calkins; if the toe be shortened, or one side of the metal is obviously narrowed,—it denotes precautions against clicking and against overreaching: the first being a most audible annoyance, which may lead to the forcible tearing away a fore shoe; and the last causing a fearful, a terrible, and an incapacitating wound upon the heel of the foreleg Also, should the toe of the hind shoe be ground down, while the heel exhibits no obvious wear, the fact demonstrates the existence of a spavin. Either clicking, overreaching, or spavin is legitimate cause for rejection.

The reader, from a perusal of the foregoing remarks, will comprehend a few of the difficulties which beset the purchaser of a horse; and these may warn him, in some measure, of the dangers that surround a person so engaged. The author is a veterinary surgeon, of some experience; but he would be very sorry to buy a steed for himself upon his unsupported opinion. He would always have the animal examined by a professional man ere the purchase was concluded. How greatly, therefore, must the general public stand in need of such protection! Especially when the known hazard of the transaction and the confusion necessarily accompanying a direct personal interest in the business help to confound the intellect and to overpower the judgment!

All persons complain of the roguery that is mixed up with horse dealing. The complaint is just; but it is not just that the public should vent it. It is the general abuse and the inhuman treatment to which animal life is subjected that renders such practices necessary. The cruelty and the roguery are associated as closely as cause and effect. Let the provocative be discarded, and its result, of course, must cease. But no man should blame the conduct which his own deeds have willfully generated. To hurt and to injure a patient and an obedient animal is a positive sin,—a violation of the trust confided by the Creator to the creature. To defraud, in a money transaction, is simply a crime,—an offense committed upon the laws by man established over man. Then, what right has he who violates one of the ordinizations of nature, to point at and to sigh over the person who merely breaks a human institution?

Christianity, if its benefits were exemplified in man's actions toward the creatures living under his dominion, would immediately operate upon society. The horse, under better treatment, would of course not be liable to those injuries and accidents which roguery in the dealer merely endeavors to conceal. There would be no occasion for cheating when the creature exhibited no scar or defect which the seller was interested to hide or to deny. Thus one stain upon the present civilization would

be abolished; for, notwithstanding the numerous assertions to the contrary, the author has yet to see the man who practiced dishonesty from a sheer love of iniquity.

The well-to-do may lament the immorality of the class below them; but if gentility would look less leniently upon itself, probably the exhibition of crime might be viewed as no more than the apex of a pyramid whose base is deeply planted in the frailties which are common to general society.

CHAPTER XIII.

BREEDING—ITS INCONSISTENCIES AND ITS DISAPPOINTMENTS.

THERE are very dissimilar kind of horses produced in this country, the breeding of which concerns many different classes of proprietors, and all of which are ushered into this world with most opposite formalities; therefore no author may pretend he is qualified to write about every description of animal, with any air of authority. The person, however, who has long thought upon the subject, and who, by education, is fitted to arrive at a just opinion, may reach a conclusion which, without appealing to the prejudices or interfering with the mysteries of any particular class, nevertheless shall, in its decision, apply with equal force to the entire body.

The writer states thus much, because, though not absolutely without experience, he yet can put forth no pretension to be specially initiated into those practices and tricks which ignorant people suppose to be requisite for the essential regulation of particular affairs. Neither does he aspire to be esteemed a proficient in jockeyship, which the public appear to imagine involves everything concerning the equine race. The following pages are indited by an individual who, fond of the subject, and instructed as a veterinarian, has now attained an age when the mind should be equally above the errors natural to schools and the superstitious, which appear to be inseparable from general society.

There is one fault which is exemplified with the like strength by all parties who, in England, assume they understand the breeding of horses. Every proprietor, when so engaged, endeavors to render the mare subservient to two or to three distinct uses. All will burn the candle at both ends; then the public sympathizers raise a loud exclamation because such willful extravagance does not specially serve any economical or any useful purpose. Nobody dreams of propagating from an animal until its body has been injured and its vitality has been weakened by services rendered to an exacting master. The results which labor can impress upon a living organism may be observed emphasized upon the manufacturing classes of Great Britain; but much as has been published

concerning the cruelty which man can practice on his fellow-man, such inhumanity cannot be compared with the torments which are, openly and without a sense of wrong-doing, inflicted upon the dumb existence that cannot plead its wrongs, and which the social code even permits to be maltreated.

There may be an enactment applicable to extreme cases; but the most acute anguish no statute touches. Where the law is operative, death is always near the extremity which mortal justice condescends to relieve. To prevent extraordinary agony, is not to soften the general treatment. No man hitherto has conceived there can be any outrage committed upon charity by breeding from the body which, through a life of service, had earned a right to rest. But most horse proprietors only "throw up" the animal they intend should perpetuate its race, after strains and pains have rendered longer life a larger misery. Work, in this land, appears with quadrupeds to be esteemed a necessary preparation for "the stud." No one in this country, famous throughout the world for its breed of horses, seems to be endowed with any distant conception of the age which fits the body for the reproduction of its kind; but all appear to imagine the period is any time after the capacity for toil has diminished. What a comment is, by the custom, promulgated upon the Christianity which, after more than eighteen hundred years of doctrine, the inhabitants of many places besides Great Britain may point to in illustration of their belief!

Bodies crippled by too early labor, or carcasses disabled by disease, are generally found among the breeding stud of a modern establishment. The foals of nearly all breeds are injured before the little creatures see the light; it is, therefore, no matter for surprise that a breeding mare is, by the majority of farmers, esteemed to be a losing concern. In the case of blood stock, both sire and dam are submitted to the trainers' processes ere the second stage of equine babyhood has been perfected. Certainly where an amusement is pursued with a reckless defiance of economy, a little longer grace might be accorded to the animals employed to promote it; or where the topmost prize is estimated not by tens but by thousands, it might be prudent to speculate with a little forbearance for such a reward.

Has it never occurred to a nobleman, or to any gentleman, that it might probably be as profitable to keep the most promising foals sacred to breeding purposes; that, simply as a paying speculation, it might answer to do for the course what agriculturists have done for the land,—only with this difference, that whereas one desires bulk, the other should aim at courage, strength, and speed? Animals, if well cared for, and never placed in the trainers' hands, would in all probability bring forth

finer specimens of horse flesh than either their parents or their progenitors. These foals, being selected and kept apart until the sixth year, might generate young which should sweep the land; and a stud of "clippers" would, assuredly, prove a pretty private property.

Such a plan includes much more care than is at present bestowed. The author well remembers, some years back, going through the straw yard of a "stud farm," in the depth of a severe winter. The place was covered with mares and their newly-born progeny. Separated only by a few open rails, was a flock of yearlings, whose staring coats and ragged manes told emphatically of exposure and of neglect. This should not be. The animals should, from their birth, be securely sheltered and liberally nurtured. He who first accomplishes this, would most probably convert that which at present is a hazardous speculation into a certain gain.

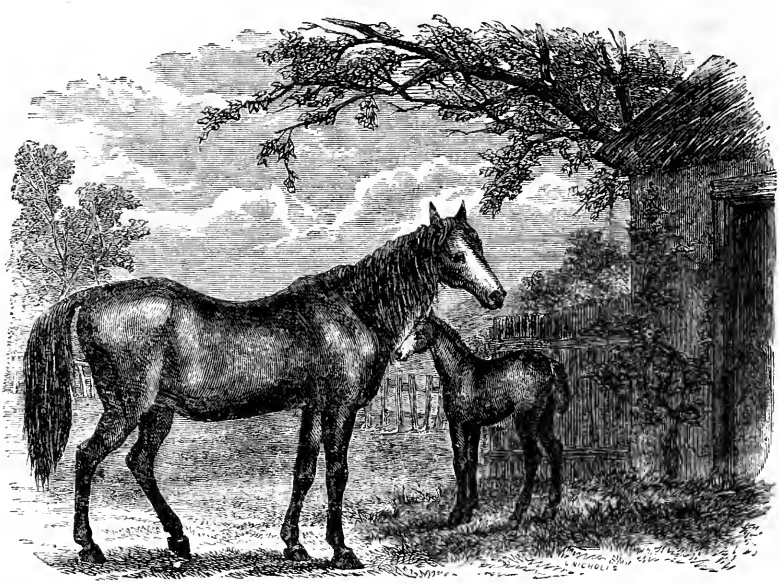
How far a youth passed in running improves the reputation of some quadrupeds, is well known; but how far it is a good preparation for the offices of paternity, is exemplified by most blood mares and stallions becoming famous through their progeny only after years of repose have mitigated the chronic evils of their early life. Prejudice, however, takes no heed of such teaching; but maintains the absolute necessity of proving both, before sire or dam are allowed to perpetuate their kind. The consequence of this system is shown in the deformed and the misshapen dwarfs which are now ruining the once-prized native breed of English horses.

A huge error also distinguishes the plan adopted by most breeders for the general market. The prevailing opinion discards the compact and close-knit female, in favor of the long-backed and loose-bellied mare, which is praised as a "roomy" animal. But all the supposed advantages of this selection are more than counterbalanced by the food which is consumed during the months of gestation. A grass diet promotes dropsy, besides necessitating so much of the poor and watery nutriment to be swallowed that, before the quantity requisite to sustain life can be eaten, more than the difference of space between the shortest and the most expanded abdomen must be occupied.

The stabled horse employs but a brief period of each day in feeding. The same animal, when turned into the field, nearly occupies both day and night collecting the food needed to satisfy the cravings of its appetite. This difference of habit is not explained away by stating that in the stable only so much sustenance is placed before the quadruped; whereas, when at grass, the produce grows on every side of the creature, which it is always at liberty to consume. Many an animal will not clear the manger; therefore the quantity of food devoured in the field is

only to be accounted for by that opinion which justly states grass to be a poor and innutritious sustenance.

The distinction which divides the two kinds of provender is, perhaps, best shown by the condition which each produces. The horse supported by the concentrated nourishment of the stable is commonly, while the natural powers are uninjured, characterized by energy, by firmness of body, and by fineness of limb. Whereas the quadruped is seldom long an inhabitant of the field ere it becomes windy, loose, flabby, dropsical; the walls of the abdomen are unnaturally distended; the digestive canal grows thin and pallid; the belly becomes pendulous with fluid; while worms crowd the intestines and bots cover the lining membrane of the stomach. All this takes place as the consequences which generally follow the act of turning out to grass. The animal in the field commonly performs no work; but when within the stable is rarely idle. Stables are badly victualed, badly ventilated, and almost slaughter-houses to the majority of steeds. Yet in the cold and humid climate of England horses cannot thrive upon exposure. Some few may thus exist in an approach to the wild condition; but these rapidly diminish in stature and soon become very shaggy coated. The sheltered horse, when driven forth, grows dull and



BLOOD MARE AND FOAL.

ragged; its coat stares; the spirit droops; the eye loses luster; the carriage grows mean; the legs fill; and the outcast often experiences

such a shock to the system as ruins its utility. While agricultural teams, which are mostly pastured, are not unseldom the victims of numerous diseases, as broken wind, etc.

The common country sire probably is injured from an opposite cause. Its food, during the early months of spring, is generally of too stimulating a nature. These creatures are to be seen led about, very much too fat for the proper performance of their functions. Obesity in other animals does not increase fruitfulness, but rather suppresses its development; and the author can perceive no reason why the heavier horse should be an exception to a rule of almost universal application. Common stallions, as beheld at fairs and markets, are weakened in order to please the ignorant farmers who employ these enervated animals to perpetuate the thews and muscles of the mart for English horses.

ATTENDS AT FAIRS AND ON MARKET DAYS.

From dams suffering under the consequences of an exhausted youth, injured by the consumption of an innutritious diet, and debased by the absence of that care and cleanliness which a northern climate makes imperative, is the common breed of English horses replenished. Stallions, however, afford a convincing proof that abundant food and perfect rest, when unaided, will not impart vigor to a debilitated system. Few racers are famed for their stock, till time, which weakens the powers of the body, has effaced the consequences of early training.

From sires groaning under accumulation of fat, and of course equally pining under deterioration of the muscles, enervated by sloth, excited by stimulants, weakened by age, or with constitutions broken by premature exertions, are the claims of British thorough-breds at present maintained.

What are the results of such a system? Distances have to be shortened. Many start; but few return, contesting the race. Ages have to be altered; while boys have to assume the cap and the whip. Useless weights are sought to suit the failing strength; but more animals break down in the training than come to the post.

Yet racing is maintained, not for the amusement of a few, but *to improve the national breed of horses!* How far does it answer its purpose? Let the public markets testify. A stout hack is a rarity. Such an animal was once all but universal. A brougham horse—one looking fit to pull a house—was formerly to be found in every yard. Now London shall be searched through before the shadow of the original can be encountered; when discovered, the price demanded will be far too heavy for the generality of purchasers. The horse flesh of England is becoming weedy under a forced system. Poor "bloods" are everywhere present. In the sphere to which this breed should be confined, a few foals are retained; but the majority are discarded. Many are born that do not return the first expense which called them into existence. Those rejected are to be seen drawing cabs, carrying riders, pulling carts, and performing every office, which is at once a proof of their utter want of value and the hollowness of the pretense which perpetuates such degradation.

The glut of worthless "bloods" serves to check the raising of the other and the better kind of animals. The refuse of the stud farm being disposed of to the highest bidder, so far keeps down the price of common horses that what are termed serviceable quadrupeds have become scarce throughout the land which once produced them in abundance. Thus blood stock is contaminating the native breed of the country. Even with particular breeds—or with the Cleveland bays—the horses which dragged the cumbrous vehicles of our ancestors are lost to the present generation. Carriages are built lighter; but the animals, being nearly pure blood, lack strength and want substance. They are now a leggy, a washy, a soft species of creature, which gentlemen find it cheaper to hire than to buy; while only by keeping a herd large enough to allow some to be nursed and others to rest, does any person find it profitable to retain these quadrupeds, even though the money paid for three years' loan should double the usual price given for an average pair of such poor and abject deformities.

The consequence is, that many gentlemen drive small horses, while omnibus proprietors, etc. prefer the coarser breeds. People are now aware that the lesser size renders the purchase easier, enables the horses to last longer, while sickness is not only less frequent, but the consumption of fodder is altogether smaller in quantity. Carriages are now built of diminished height and of lighter draught; therefore the expense of such a convenience is in many ways lessened. Indeed, the custom has become so general and has so many advantages to recommend it that dealers cannot afford to trade in Clevelands, the sale and the possession of which quadruped is, by the modern salesman, without a murmur relinquished to the job master.

The entire system must be changed, or, while it continues, men should consult the Calendar only to learn what sire to avoid. The blood stock has been bred too fine: all the properties which formerly distinguished it are now deteriorated. As greyhounds were improved by being crossed by the bull-dog, so does the English racer demand the infusion of little "cocktail" into his lineage. The Jockey Club must not perpetuate the weakness of that animal which this society pretends to conserve. Distances should be lengthened, weights increased, and ages made not to favor the maltreatment of mere foals. Nothing would do more to promote an improvement in the breed of English horses than a stoical determination which should render useless the present abundant crop of "weeds." Sires should be chosen because of their stamina, their make, their thews, their muscles, and their general soundness. The quadruped should be treated naturally; not enervated by first being trained, and then debilitated by being pampered.

At the same time, that excessive obesity which is remarkable in all existing stallions of the ordinary breeds should be avoided; nor should the stimulants now in general use ever be employed. No animal should ever be kept in solitude and in darkness, as though its worth were dependent on the amount of mystery by which it can be surrounded. Such treatment is cruel; therefore it is needless. An entire horse is not, necessarily, a savage, though many, being spirited creatures, are made dangerous by the tricks played upon them and by the restraints to which they are needlessly subjected. In several countries emasculation is unknown. Though in India, native rudeness and European prejudice may engender ferocity, the author can boast of having made friends of animals that had undergone no deprivation; and the memories of such friendships are cherished with something more than the recollections of mere equine gentleness.

To illustrate this subject, the author must be pardoned if he introduces an incident which occurred to himself. He was of middle age

when he entered as a student at the Royal Veterinary College. His mind became confused by the new sort of companions which he encountered; by the novel objects which surrounded him; and by the strange kind of knowledge he was required to master. This confusion was the greater, because previous habit in the writer had not rendered him familiar with horse flesh. An animal, therefore, was needed, so that reference might be made to its body for an explanation of the books which the pupil was expected to comprehend. At length, in the corner of a back yard was discovered a lonely, loose box. Inside there was a quadruped; and to this place the volume was daily taken, with various morsels of bread or vegetable. Thus, between feeding, reading, examining and caressing, many an afternoon was most pleasantly whiled away.

It was necessary to indulge in certain intimate familiarities. Sometimes to change the position of the animal, or to finger its lower extremities. When doing this, the author possessed no jockeyship to protect him, neither was he conscious that any protection was necessary. He used to shut himself up with the companion of his studies; and the hours thus spent he now remembers as among the very happiest of his existence.

More than a fortnight's leisure had been pleasantly occupied, when, as the writer was one afternoon stealing to the being which lightened the tedium of his studies, and was in the act of opening the door, a number of fellow-students detected him so engaged. "Mayhew! Mayhew!" the group shouted, as with one voice, "where are you going? Don't open that door! 'Van Amburg' is there! He's a kicker and a biter! You'll be killed! Don't open the door!"

Van Amburg was the name of the thorough-bred racer, which had been sent to the College "for operation," because of its supposed ferocity. Yet I, a novice, had passed many an hour in its society, and assert I could not have desired a more gentle companion. We have often laid long together side by side; or, as I reclined upon the straw, reading, the head would rest upon my shoulder, while a full stream of fragrant warmth would salute my cheek. Still, such a creature, so open to advances, so grateful for little kindnesses, was a reputed savage! Probably its real disposition continued to be maligned, and remains now unknown, save only to him whose ignorance was made happier by a discovery of the truth.

A training stable is not calculated to develop the true disposition of a high-spirited animal. A horse generally retains the character which is earned in such a place. When no longer running, but kept for "service,"—boxed up and chained, debarred from all freedom of motion, highly fed, and *teased* to the performance of his office,—such a creature

cannot be good tempered, or long continue very sound. Such usage is parent to many an ailment and to many a disease; but, nevertheless, when surrounded by mystery, the stallion may for years continue profitable to its proprietor. It may be the means of transmitting malformation to its descendants; yet the attendant who could best describe its real condition has, in the money which is always paid to the groom, a direct pecuniary interest to uphold the public ignorance.

The thorough-bred mare fares even worse. The animal may get one or two feeds of corn each day; but its chief support is grass, which crams the viscera without satisfying the appetite or nourishing the body. The creature, when "thrown up" for stud purposes, exchanges an overheated stable for an open shed. From the exhaustion generated by closeness, it has to endure the coldness of all but absolute exposure. The coat is no longer dressed; the mane is left uncombed; the animal gradually turns to a pottled deformity, the resemblance of which may be generally witnessed near to every gipsies' encampment.

All animals which are intended to perpetuate their race should be comparatively young, and only subjected to such easy toil as will repay the difference between the stable and the field. The quadrupeds should be daily groomed, and ought to be supported by fodder of an extra nutritious character. Gentle labor and a warm, loose box will only keep the body in good health. When not required to work, the animal should be left at liberty to roam about a piece of bare pasture, especially during the night, when the flies are not abroad, and when the vision of the horse enables it to move with perfect safety.

This treatment should be continued almost to the time of foaling; when the period is very near, three weeks or a month of perfect rest may be accorded, duration being regulated by the condition of the animal. Rest, however, does not imply that the expected mother is to be turned into a straw yard, or is to be exposed to the inclemency of the season. One month subsequent to birth, the work may be gradually resumed; but the mare and her foal should not yet be made to travel on the high-roads. The little life may, in the fields, safely gambol by its parent's side. The exercise will benefit the youngster, while its eye will become accustomed to the toil with which it will have to be associated hereafter. But the tender hoof of the newly born is not, at the expiration of the fourth week, so formed or so hardened as to endure the grate of the common highways, although the feet may sustain the wear consequent upon moving over meadow land.

The foal, before it saw the light, would be sustained by the good food consumed by its mother; the mare would not, by gentle work, be so lowered as to unfit the quadruped for the offices of maternity. By se-

lecting the jobs to be executed, these need not require greater exertion than would be necessitated by healthful exercise. Thus a suggestion, which to many minds may appear a heartless exaction, being explained, becomes no more than a conservative recreation. Something of the kind is needed, because gestation and lactation naturally dispose to sloth, and half the danger of parturition springs from the debility which idleness engenders.

THE MANNER IN WHICH A MARE MAY EARN ITS KEEP, DURING THE PERIOD OF LACTATION.

To render this subject more easily understood, let the reader ask the family medical attendant who is blest with the strongest child—the wealthy lady, who can afford to repose throughout the day upon a sofa, or the tradesman's wife, who is necessitated to bustle about, and to assist in the lighter portions of the household duties? Or, if a more direct illustration be needed, it is afforded by the contrast presented between the swarming cabin of an Irish laborer and the often heirless mansion of the English aristocrat.

Were such a custom only prevalent as has been indicated, those "stud farms," where mares are taken in and confined in the straw yard, with newly-born foals by their sides, would be thrown out of use. The animal, being daily harnessed, would be constantly inspected. There is always plenty of light employment for one horse, if a farm be kept in order. These odd jobs are now either neglected altogether, or are suf-

fered to accumulate until a wagon-load of rubbish encumbers the soil. To remove such heaps and obstructions from time to time, the mare and a boy might be profitably engaged, doing quite work enough to pay for corn and to recompense for grooming. The necessary handling would prevent that condition of semi-wildness into which too many mares degenerate; while the nature of the labor would not render it profitable for a proprietor of land to keep more than one quadruped for breeding, which is the number that most farmers could find leisure to attend to without neglecting other things.

In the author's opinion, the measures at present pursued in the breeding of horses are altogether wrong. They are expensive in their operations and are deceptive in their results. They seem to be regulated by no consideration for the animal, but shaped to the utter convenience of man. The use of "stud farms" or breeding establishments has increased with the degeneracy of blood stock. The horse is by nature too intimately associated with its master to be profitably reared in flocks, like to sheep or oxen, which, being unsuited for the active purposes of life, and of duller dispositions than the equine race, can thrive on mere tranquillity, increasing in the state of semi-domestication. The horse is gifted with a spirit which refuses to vegetate, to fatten, and to multiply, being content simply with an abundance of provender. Where successful speculation is dependent upon the value of the produce rather than upon the number of foals born, a man may certainly be richer, who shall in two years obtain one prime birth; and he may be much poorer, who is annually the owner of various yearlings, none of which shall be suited to the higher purposes of the breed.

The proper place for the horse is the homestead of the proprietor. It is the servant, and should be the companion of its owner. There is no other living creature which is so entirely blended with man. It is unknown in the wild state,—the flocks of horses spoken of as wild being merely animals which are turned out on uninhabited plains, but which, nevertheless, are strictly private property. The distinguishing mark of wildness—or a tendency to return to a particular color—is lost in this quadruped. Wild sheep and goats are common. Oxen, as an undomesticated race, are largely represented. But on the face of the globe the horse—though the most intelligent and the fleetest of its genus—is not to be discovered unassociated with humanity.

The creature, thus distinguished, merits that the gentleness of civilization should characterize its treatment. During the months of gestation, the animal should be fondled and caressed. Any kindness which may be now lavished upon the submissive slave will be certainly repaid hereafter. The hour is approaching when a familiarity with man may

soften restraint, and render less perilous the time of danger. The mare, being more intelligent than the cow, feels more acutely, and does not suffer so apathetically. It is more demonstrative in its behavior; but the generous quadruped will, in the utmost wrench of agony, recognize the step or the voice of one who has been kind, and will even be sustained by the presence of him who has earned its confidence. The animal is by gentleness wooed, as it were, to submission. It learns to associate happiness with the person of its superior; and willingly subjects itself to his assistance. Moreover, there is a depth in nature which humanity has not fathomed, and the indulgences bestowed upon the mother, in some mysterious manner may serve to tame the progeny that is not yet numbered among the host of this world's inhabitants.

Then, following the author's proposed mode of treating a mare, which shall be profitable for brood purposes, let the most promising female foal be destined from its birth for this function. It should never be placed in the hands of a "breaker," or have its back strained by being mounted. The creature should be rather coaxed to toil than coerced to labor; it is astonishing how much more can be accomplished by such means than will be effected by the harsher methods. Subsequent to the fourth year, the quadruped may earn its keep; but it should never be urged beyond that point, and where a difference must exist, the balance should stand in the animal's favor. Only the lightest jobs should be chosen—the mare being treated more like a favorite slave than regarded as the servile drudge, whose exhaustion will tend to the profit of a harsh proprietor.

In this manner the first six years should be passed, when the mare, being matured sufficiently, and uninjured by work, may be put to the destined purpose; similarity—not sameness, but more decidedly not difference—regulating the choice of a sire. In the selection, allow one to amend the faults of the other; but in seeking this, avoid absolute contrast, as the union of opposites is too apt to produce deformity.

When choosing a mare for breeding, endeavor to discard the much which has been printed on this subject. Let compactness of form, strength, and an aptitude for exertion decide the choice. The legs should be stout and short,—declaring bone and tendon to be present. The upper portions of these members cannot be too bulging, thick, long, or muscular. The crest should be highly arched, and characterized by substance; for the movements of the body are much controlled by the muscles of the neck. The shoulder cannot be too fleshy, so it shall slant properly, is firm to the touch, and is situated below withers sufficiently lofty. For hunting or for ordinary purposes, high withers are imperative. For racing they are no recommendation, as lofty action delays speed and lessens the length of stride. The back should be

short, save only in the racer. The loins ought to be broad. The hips cannot appear too ragged or be too wide apart, while the quarters must seem large in every direction; nor is it to be considered a fault, should these last parts stand higher than and appear disproportioned to the other regions. Above all, see that the channel is wide, the mouth large, and the nostrils ample.

Do not, according to the prevailing notion, search after a long or roomy trunk. Most people like such a shape, because the carcass which they seek after is wanted to contain, with a foal, the enormous quantity of grass which the animal is forced to consume before life can be sustained. The mare just described is not supposed to live in the field, but to be as carefully tended and as liberally nurtured as the best horse in the stable. It is, during gestation, desirable that nourishment should occupy as little compass as possible; while it should not corrupt the body's natural juices. This last effect is consequent on the consumption of dry fodder. The moisture of the mother's body is abstracted from the fœtus, to soften the harsh and hard food which oppresses the stomach. But when grass is eaten, an excess of water renders that which should support the growth of the future foal weak and devoid of nurture, while it engenders dropsy in the dam, and also compresses the dawning life in its primary home.

When the period arrives, the time occupied by the mare in "foaling" will be short. The cow is usually slow in these matters. The mare is always speedy, and far less patient under pain. Therefore when the signs, which are well understood, declare the time to be rapidly approaching, send immediately for the nearest veterinary surgeon. However, previously ascertain that he is apt in this kind of business; and, above all things, be sure he is a feeling man. A coarse and noisy practitioner is of no service about horses. The words may not be understood, but the manners are quickly interpreted. The quadruped, at this period, wants support, encouragement, and kindness. A harsh command or a threatening gesture may so alarm timidity, in its hour of excitement, as shall retard the event they are intended to facilitate. Severity, however, does not always lead to any immediate result; but it may so flutter the mother or disturb its system as will assuredly be fruitful in after disorder.

Should the animal be properly formed, and have been well selected, but little aid will probably be required; yet it is always prudent to have assistance at hand, as the mare on such occasions admits of no delay. Do not, however, allow the animal to give birth in a field or in the open air. Such may be the prevailing custom; but custom is always a bad leader for a prudent man to follow. Numerous children are born under

hedges or in gipsy tents; but, nevertheless, such places are not to be preferred for ladies; and the horse, now under consideration, has not been reared upon a common, or is it one that knows only comfort during the presence of sunshine. Lead the quadruped gently into a thickly littered loose box, having trusses of straw carefully poised against the inner walls of the building.

PREPARING THE LYING-IN CHAMBER.

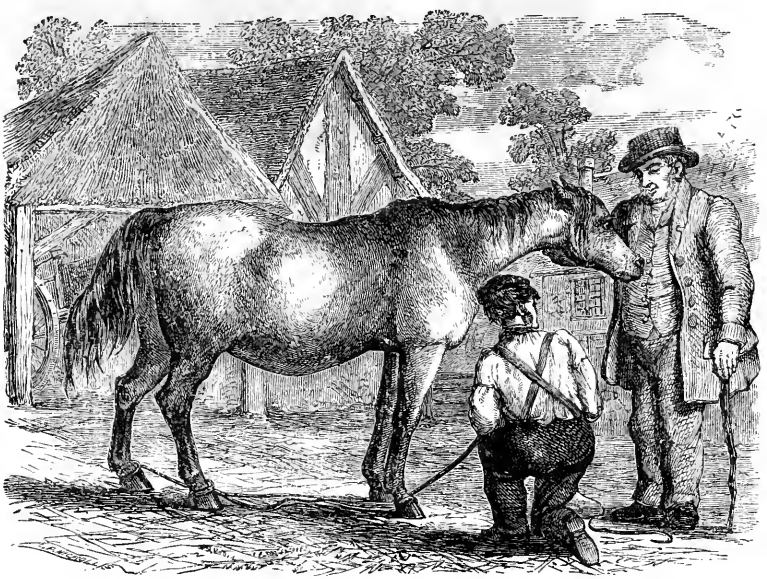
The proprietor, however, must not be regulated in his measures by any rigid attention to dates. These afford nothing like an absolute rule worthy of being implicitly obeyed. Neither need he be thrown into a fluster, because the mare heaves at the flanks. Such a symptom, when unaccompanied by other signs, merely denotes a passing spasm, which may generally be removed by the following drink. Should the pain not yield, the dose may be repeated in half an hour; for, at this critical period, no bodily disturbance can be without importance. These attacks are said to be produced by drinking largely of cold water, by unexpected excitement, etc.

Drink for heaving of the flanks.

Sulphuric ether	One ounce.
Cold water	Three-quarters of a pint.

Mix. Stir till the ingredients are blended; then give as gently as possible.

The hour of labor being near at hand, a pair of light hobbles should be attached to the fetlocks of both hind legs. This should be done by the person in whom the animal has the greatest confidence, as the near approach of a stranger, at such a moment, is very far from desirable. From each hobble should proceed a stout, short rope, the ends of which should unite with a longer cord. The man whom the quadruped most likes should pass the longer rope through the forelegs, and, taking his position near the head, he should hold the end, not so tightly as to inconvenience the mare, but always so firmly as will be ready for any sudden surprise. Mares are apt to be impatient on these occasions; under the strong tension of agony, they will sometimes "lash out." Should such be the case, the man's strength may not be powerful enough to check the action; but when aided by his voice, it may distract the animal's attention, break the force of the blow, and save the veterinary surgeon from any very serious injury.



PREPARATION FOR THE EVENT.

When the foal is born, let it be received in the arms of the groom, and with care laid upon the straw. This done, all present had better retire, for the mother and its offspring may with confidence be left to nature. There should be no peeping through crevices, for the eye of maternity is cunning at detection. Neither should the slightest noise be permitted around or near to the building, as the nerves are always morbidly ex-

cited during this particular period. Silence is a good medicine to quiet a disturbed system. The creature will do well, if left to itself. The cleansing of the foal may be confidently trusted to the parent's affection. All she immediately requires is a pail of milk-warm gruel; three hours afterward, she may accept a meal of prepared food.

THE NEWLY-BORN FOAL.

Should the after-birth not be immediately ejected, resort to no purging; neither adopt any mechanical contrivance to expedite its expulsion. These old methods are altogether wrong. The retention is caused by the weakly condition of the mare, which allows the uterus to remain relaxed. The fittest physic, in such a case, is a quart of strong and sound ale. Give three doses of this medicine, each administered after a lapse of three hours. Should no effect have resulted subsequent to another pause of the like duration, inject into the part a full stream of cold water, permitting the fluid to return unchecked. Continue to do this till a spasm appears; then leave off, for your object is accomplished: the pain announced the viscus has contracted.

Dry the mare; give another pail of gruel; place a feed of softened food in the manger, and leave the creature to luxuriate in that rest which will now be enjoyed.

Animals soon get over such affairs. The foal requires nothing beyond a sheltered abode and its mother's attention. Should, however, the

source of the young one's nourishment prove unprolific for more than twenty-four hours, a little skimmed cows' milk, first boiled and then slightly sweetened, being afterward diluted with its amount of warm water, may, if sufficiently cool, be presented. The human hand is inserted into the fluid, and two fingers only allowed to protrude above the surface; these are generally seized upon, the nourishment being easily imbibed by the hungry foal. More than a single feed is seldom needed; even that had better be withheld until evident weakness necessitates its administration.

FEEDING THE NEWLY-BORN FOAL.

Do not bother the mare or be tempted to thwart the course of nature at such a time with the impertinence of ball or drink. All physic should be withheld. The common Parent is very indulgent at such seasons; unless opposed by mortal ignorance, his kindness generally proves the best restorative. However, should the bowels continue decidedly costive, some abdominal irregularity may be suspected, and then a bran mash, into which some softened corn should be thrown, will commonly afford all requisite relief. With regard to the newly born, it is better not to interfere. So the parent be kept in health, the offspring usually has all the medicine it requires. Liberal, not too stimulating diet, a sheltered abode, a dry ground, and a kind proprietor embrace the chief if not all the wants of an animal in this condition.

The mother, after her title is confirmed, should always receive her food out of some vessel, which a man should hold during the time it is consumed. Much good is thus effected by allaying the fear natural to maternity; the person so occupied should carefully abstain from any act which might alarm the anxiety of a newly-made parent. The same individual should not always present the meal; but different people should assume this office, so the animal may be thus trained to regard men as friends, and taught to depend upon the generosity of its superiors. By degrees, the foal should be coaxed to accept morsels from the hand of its attendant; advantage should then be taken to pat and to fondle the timid youngster. The purport of such lessons is quickly understood;

FEEDING THE DAM, AND COAXING THE FOAL TO EAT.

for the horse appears naturally to value, far higher than is its worth, any act of condescension from the appointed master. There seems to exist a yearning toward its custodian, and it is surprising to witness with what persistency the human race repel this instinct. The sole object of man—who should by right of moral appreciation and of intellectual culture subdue, tame, and domesticate the creatures of this earth—appar-

ently being to make his presence dreaded by the lives which long to love and are anxious to serve him.

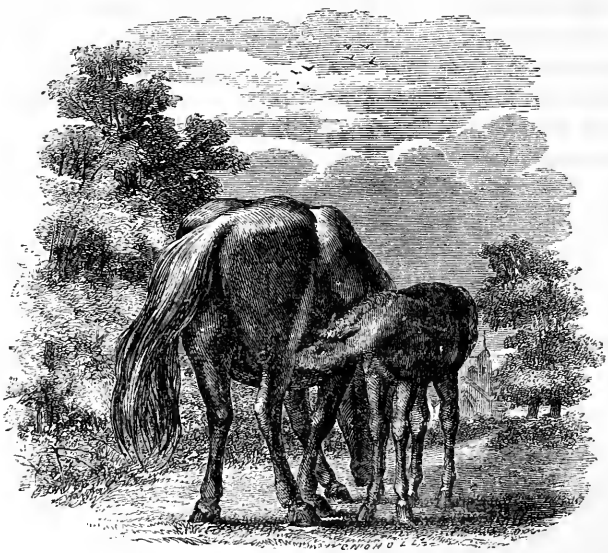
It is usual to reintroduce the male a few days, generally three, subsequent to delivery. But such a custom is far too saving to be profitable How does man imagine that one poor body is, besides extracting sustenance from grass, to yield milk to the living and to sustain the growth of the future offspring at the same time? It has been well declared that no organ is equally fitted to perform two offices; but surely either of the functions alluded to is a sufficient drag. If the reader has any interested motive for concluding otherwise, the countenances of most women, during the latter stages of pregnancy, and the shout of the pot-boy at the human mother's door, are evidences in favor of the author's correctness. Moreover, to demonstrate how these functions are opposed, a fact of common occurrence, among the lower order, may be mentioned. When failing wages render an increase of family undesirable, it is usual for the married women to suckle the last child even for years, thereby delaying the advent of the next intruder.

To afford the nutriment which shall maintain two growing lives and to support itself, is obviously too great a tax to be readily sustained by one body. The drain must be the greater, because each will demand the more as time progresses; thus the unborn has a portion of its sustenance diverted, while the milk, on which the living foal should be matured, is impoverished by the necessities of the maternal system.

Therefore, when entering upon the speculation of breeding horses, it should be remembered that though a foal is a foal, nevertheless a good and a bad foal are very different beings, when tested by figures in an account book. One good foal, every two years, will pay far better than four bad foals every year; as the eight indifferent creatures may be well sold at £20, whereas a promising produce may be purchased at a very reasonable price if it should be parted with for no more than £50.

When depicting the habits of most breeders, however, it must be recollected that the greater number of mares get no corn. A few receive from their liberal owners a little of the damaged produce of last year's crop; while thorough-breds generally obtain *half* the quantity allowed to most working animals, and to each the grain is always presented dry. The majority of mares are turned out to grass, with the foal running at their sides, and the enlarged abdomens showing that "one off, another will come on," which seems to be a ruling maxim with English breeders. Green herbage has a tendency to induce ascites; such an effect declares the food to be deficient in nourishing properties. The mare, then, while suffering from a most exhausting malady, excited by unwholesome diet, is expected to suckle and to breed! The body thus engrossed is, more-

over, anticipated to yield its owner a profit. To uphold such a foolish system, there are large establishments scattered over the country; while gentlemen and men of education publicly vent their lamentations, because so senseless a plan does not prove a remunerative amusement!

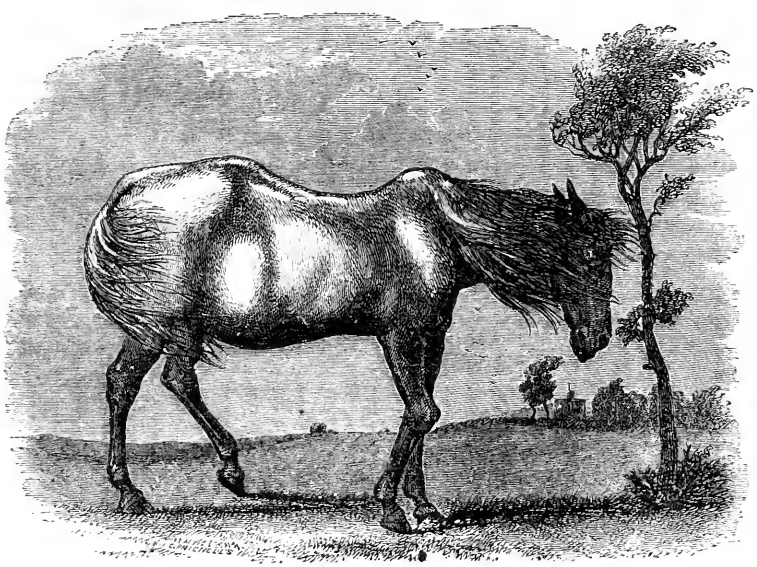


BREEDING, SUCKLING, AND LIVING ON GRASS.

With the silly method of breeding should also be discarded another general rule, the two regulations evidently forming part of one system. Be the foal healthy or weakly, it is permitted to run at its mother's side only for an arbitrary period. Should the young one be well developed, its good points may, nevertheless, be confirmed by a reasonable enjoyment of the maternal attentions. Often the too early weaning will prove a serious check to the growth. Could man only control his impatience, the settlement of such matters might be left to nature. The pair should not be divided, so long as their company is mutually agreeable. The animals, however, as age advances, should be carefully watched, and the two separated so soon as the mother shows she has received nature's command to stop the supplies.

It is a common occurrence for the breeder to delay "operating" upon the male colt, because the body needs further development. A week or two of early comfort will do more for the future points than will months of delay, after the deficiency is all but confirmed, or when time has given a certain direction to the growth. The author has never beheld any

benefit result from these periods of exemption, which are, however, usually granted as a kind of forlorn hope. There is another prevalent custom, which is equally objectionable. All men, in this country, first use the animal which is subsequently to propagate its race. The higher breed is broken, trained, and run, before it is "*thrown*" into the stud. In lower life, the farmer, after having hacked and hunted a creature till existence is worthless and spirit gone, says, over his jug and his pipe, "That ould mare has proved a downright good bit of stuff. I should like to have a foal out of her before she is knocked on the head." So he procures the service of some led horse, and turns the aged animal on to the common, to endure the inclemency of our climate without protection,—"to rest herself," he asserts; but the author declares such food and shelter to be almost starvation. This conduct would seem to be the climax of possible folly! Nevertheless, the farmer acknowledges nothing wrong in his behavior; for he is as bold and as loud in his lamentations as other people, when a weakly foal results from his want of consideration—the blame always being cast upon the sire.



THE OULD MARE.

The foregoing chapter has not been so much an exposition of existing customs, as a consideration how far the prevailing habits reasonably admit of amendment. The views which have been announced may, to many minds, appear as purely theoretical, and, as such, to be deserving

of no consideration. But before the reader jumps to such a conclusion, he is entreated to reflect that the period of gestation in the mare occupies nearly the space of an entire year. Having weighed this fact, let him learn the gestative season required by other animals, and determine whether there is any living creature whose capabilities are taxed with an equal severity to those of the equine tribe. At the same time, he should appreciate the circumstance that the offspring of the horse is esteemed only as its body is developed, or is capable of labor; whereas the young of many other creatures are kept for amusement, or valued only as articles of food. Surely, where perfection is the object, a greater patience might be reasonably displayed in the mode of securing its attainment!

CHAPTER XIV.

BREAKING AND TRAINING—THEIR ERRORS AND THEIR RESULTS.

However much the English nation may have advanced in civilization, as regards the horse, its habits, its subjugation, and its training, two centuries would appear to have introduced no important change or material improvement. Some minor alterations, undoubtedly, have been adopted; but the benefits conferred upon the animal by such innovations are more than questionable; and these variations seem to have been regulated far more by obedience to the progress of society, than to have been recommended by the slightest sympathy for the quadruped.

A reference to the copper-plate engravings which ornament the old work, in two volumes folio, by William Cavendish, Duke of Newcastle, entitled "*A General System of Horsemanship,*" will demonstrate the present formal mode of sitting in the saddle, which is now regarded as imperative by the military profession, to be no more than the ancient fashion of riding which was common with our ancestry. In language, manners, costume, or in any of the many things which mark a *people's* advance, fixedness has not been allowed to check invention; but, where improvement was most needed, not only to ameliorate the condition of the slave, but to confirm the progression of man, by rendering impossible those sights which degrade and which debase the reasoning faculty, it has apparently been absent. The creature, during these years, has altered in form, and has become milder in character. The spurs and bits of former times are no longer in general use, because these are no longer required. They assuredly were not cast aside from any consideration for the life to coerce which they were employed, although a simple regard for property may have banished such ready instruments of torture and of injury. In justification of the foregoing remarks, the portrait of the Marquis (only of a much reduced size) is inserted on the next page.

The lunging of the existing horse-breaker is obviously nothing beyond that circular practice which constituted the chief portion of equine education with our forefathers. It is in the book just named depicted over and over again, until the image, from repetition, grows tedious. It

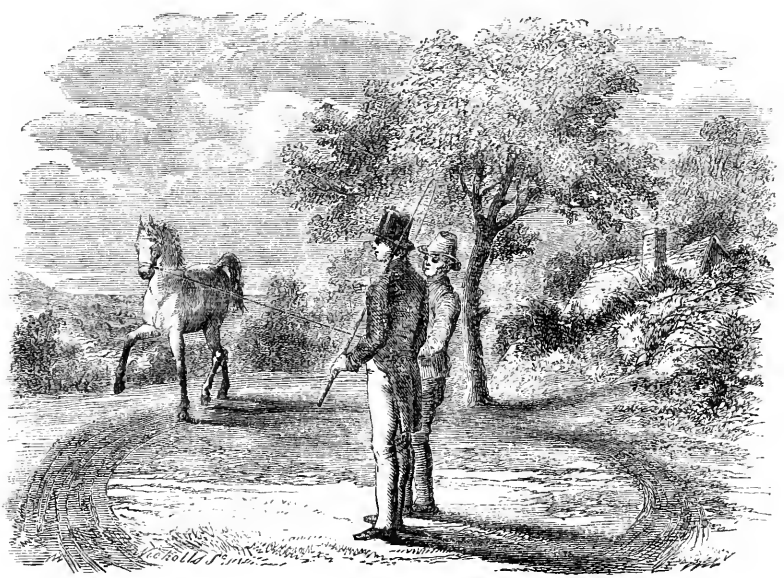
seems very difficult to understand the useful or rational purpose which this peculiar lesson is now intended to support. Some persons assert it is of much service in taming, as it assuredly must tire, the colt. Others declare it teaches the animal to bear properly on particular limbs. A third party assures us it is of infinite service, because it instructs the young horse in leaning toward the rein, and, by not permitting the eyes to be wholly engaged in directing the feet, it obliges the quadruped to employ "high action."

COPIED FROM THE "SYSTEM OF HORSEMANSHIP" BY THE DUKE OF NEWCASTLE.

The use of the limbs is governed by the natural formation of the body; this last no breaker will undertake to improve. It certainly is assuming too much for any art to pretend it can alter that which nature has decreed. A well-formed creature, although it should never have experienced the breaker's instruction, will, of necessity, exhibit grace in its movements. The action of a badly-made quadruped may be temporarily disguised, but it will permanently retain only the mode of progression it is fitted to exemplify. By forcing a faulty horse to trot in a shallow stream, or by obliging the animal to move briskly with sand bags attached round the fore fetlocks, a badly-made colt often will, for a space, adopt a higher action; but it is always certain that this step,

which has been acquired at personal inconvenience, will not be long maintained, when the inducement no longer operates.

But, to take a practical view of the good likely to result from lunging. Horses sometimes are obliged to move in circles: mill horses pass their lives in such educational employment. The only effect produced by this long course of instruction is that the poor victims become sightless. Traveling round and round soon causes giddiness, or induces a determination of blood to the brain. Young animals often stagger when relieved from their monotonous course of lunging duties. Old quadrupeds, we are told, grow used to the motion; but such familiarity is purchased with the deprivation of one "precious sense." This termination is hastened with the rapidity of the movements. Mill horses walk their monotonous rounds; but the breaker, dreading no results, makes the colt trot when describing this, his favorite figure.



LUNGING.

Blood, therefore, rapidly loads and oppresses the brain of the young animal thus abused; and this consequence is the quicker as the pace is more excited, because the circulation is not only faster, but it is also more under subjection to external influences in the young than in the matured. The optic nerves originate from the sensorium, being a direct continuation of the substance of the brain itself; whenever the nervous center is congested, sight is the first sense that suffers, or the first that

tells the condition of the organ. Frequent repetition of this result upon the delicate structures of growing life appears to be an antiquated custom, which modern civilization should immediately abolish. It is not prudent in man to hazard the injury of his most valuable possession, when he simply intends to render the animal better suited for his service.

Gentlemen no longer delight to disport on "the grand horse;" neither is it esteemed any part of a liberal education to exhibit an ability to sit in the "high saddle." It is, then, impossible to understand the motive which reconciles the present generation to an injurious form, the intention of which was exploded many years ago. No direct result appears to favor of habit. The people who profess to "break in" colts may vaunt their capabilities; but the author cannot remember the quadrupeds which, by force or cunning, however unscrupulously employed, had been in any degree improved. On the contrary, he has seen several, and has heard of more animals, which are reputed to have been injured by having been improperly "broken."

CIRCULAR PRACTICE. AS ILLUSTRATED BY A FORMER DUKE OF NEWCASTLE.

The horse is the most patient servant intrusted to mortality. Man can only spoil, when he essays to amend the perfection of Heaven's gift.

It is good enough in its natural state. It was sent upon earth with a disposition which adapted it for that position it was destined to occupy. It was created with a spirit that yearned to love, that was happy to serve, and that was proud to obey. Must it not be the fatuity of weakness which tempts mankind to waste the strength, to distort the limbs, and to hazard the sight of their most precious possession, by a senseless adherence to an antiquated form?

Every gentleman was intended to be his own horse-breaker, in the same manner as it is now acknowledged that all men should exercise authority over those families at the heads of which they are placed. The qualifications for such an office many gentlemen may be inclined to dispute; at their investment with such a novel duty many individuals may express unqualified surprise. This, however, is only the announcement of man's want of appreciation for the blessings which surround him. Could humanity exalt its vision, it would perceive in its increased duties the boundless mercies which have fitted it to rule on earth!

The horse is, essentially, the servant of man. The greatest indulgence cannot elevate the quadruped out of its real position. The foal is born to its fetters, happy in the bravery of perfect inexperience. Doubting nothing, but too timid to display much trustfulness. Gracefully pliant in its nature, therefore prepared for subjugation; but soon won to love, thereby fitted for domestication. In fact, the horse is the slave of its reverence and its affection. The breaker injures the quadruped by operating only upon its fears, and by not appealing to its higher or its better qualities. The horse, when not guided by its attachments, is a ferocious savage. It is not prudent in man to treat such a gifted creature as though it were a piece of crude metal, which will bend only to the employment of force; but it would be wiser, did he receive and shelter the youthful spirit prepared by its MAKER to appreciate the rule dictated by a milder impulse than one of brutal severity.

The equine race are rendered capricious or obstinate by injudicious petting; but they are made dangerous and ferocious by the opposite kind of treatment. The animals which are most valuable, or those with feelings most readily kindled, are the quadrupeds which the breaker quickly and irremediably spoils. Thus was poor Cruiser rendered distrustful, and taught to regard all mankind as enemies. The breaking and training inflicted upon the thorough-bred made an impression which no time could obliterate. The animal became dangerous, and continued so till it encountered Mr. Rarey. His gentleness, blended with an ability to instruct, conquered and subdued the rebellious spirit. In its surprise, the creature rose from its bonds to worship and to love forever the being who had overpowered, but had not pained the "man hater." To him it

became gentle and familiar as a dog; but toward other representatives of humanity it still was urged by that dread which had been established in its colthood.

The quadruped, being thus susceptible to impressions, of course requires a treatment dictated by wisdom and originating in humanity. No maudlin familiarity must ever be indulged, which may cause the slave to forget it is in the presence of its master. Love delights in humility; but the feelings are traitorous which tempt mortality to assume such a character before its equine dependent. The aptitude for being spoilt pervades all animal life. It is only more strongly marked in the horse than in other creatures. The dog, when too much indulged, loses its affection in its sense of power: it will often snap at the hand which feeds it. The horse requires, at all times, a conviction of authority to restrain its strength. If permitted to indulge its own will,—to stop when the voice says "go on,"—it changes from the most subservient of slaves into the most capricious of masters. Therefore man, in his intercourse with the equine race, should, from prudential motives, never be cruel; but, to anticipate the necessity for punishment, he should remember that nature had created the horse to serve and given it a disposition to obey.

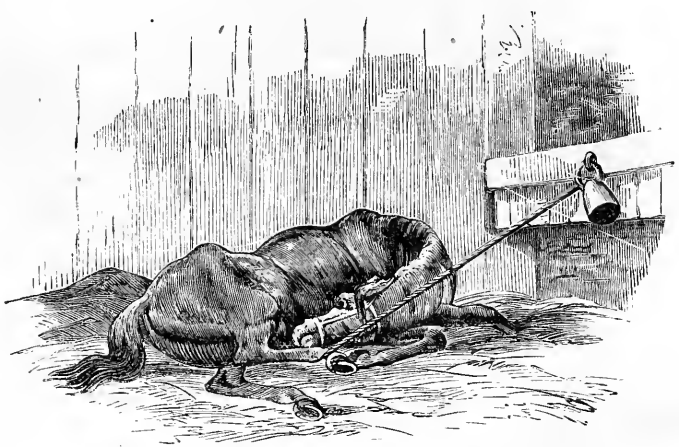
Kindness, however, is essential. When training a racer, excess of fluid is assuredly inimical to condition. But it is not therefore desirable to place the animal where a morbid longing is certain to be generated. That, however, is now always done. The stable is heated with impurity: fever is the consequence. Food is given dry: the raging thirst of disease is thereby aggravated. Still, the trainer laments many of his horses will not eat, while more fail during his efforts to promote their condition. Could he be persuaded to amend his ways, possibly he would have less occasion to sorrow over imaginary misfortunes!

Place the horse in a warm, but airy, loose box. Give the water mingled with the food, or soak the fodder before presenting it. The creature naturally consumes little liquid during health. But if the body be diseased, morbid appetites are excited. Now, condition is the perfection of possible health, and the author only complains because modern training is not calculated to attain the end at which it obviously strives. Therefore, much is ruined and little perfected under the prevailing system. The measures are wrong, simply because they are cruel. They are calculated to provoke resistance rather than win obedience from a simple being. Severity never shows itself so abhorrent as when exercised over the meek and the submissive.

At the same time that man's power may be perfect, it should be as a law of existence: it should be exercised from the hour of birth, not sud-

denly imposed upon an unbroken spirit which had previously been permitted to enjoy the wildest freedom. It should govern from the earliest consciousness, not, as now, be plumped upon a young life which has hitherto been permitted to roam, knowing no restraint. The foal should not run entirely free by its mother's side: the colt should not be turned into some handy paddock to feed and grow, till it is old enough "to be wanted:" the life should not exist without a need or a care, until a certain age is attained, when the young creature is to be suddenly parted from its enjoyments, and the happy spirit is to be literally "broken" unto the most servile obedience.

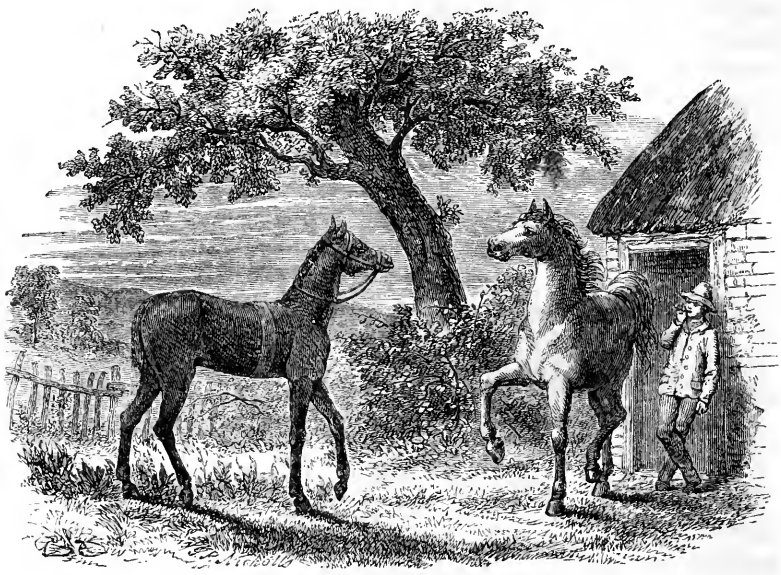
Let the education commence with the birth. Let a man always present the vessel from which the mother feeds. The mare will obey the instinct of appetite; the behavior of its dam will instruct the impulses of her young. At the expiration of a week or two, the semblance of a



CAST BY THE HEAD-STALL.

head-stall may be put on the foal; but this should never be worn when the groom is absent, as animals may cast themselves, by getting the hind hoof entangled when endeavoring to scratch the ear. That part of the body the friction of the straps generally causes to itch; the consequence being almost certain, the result is likewise fatal. Several valuable horses have been sacrificed, through grooms turning the creatures into the field without removing the halters. These last were left on, because the quadrupeds, when thus caparisoned, were more easily caught by an idle domestic. This subject has, in a previous part of the work, been illustrated; but to prevent the inconvenience of a reference to a former page, the engraving was reproduced.

After a space, a cord may be attached, and the young may be held while its parent feeds. Then something like a surcingle may be fixed round the body; such things should be made of strips of cloth or of calico, the intention merely being to indicate those articles which must be assumed hereafter. Subsequently a juicy piece of any root the creature may delight in—of marsh-mallow, of aniseseed, or of liquorice—should be inserted between the lips as a mimic bit, from which should depend two short reins. If these things are properly made and carefully introduced, every addition will be accepted with pleasure as a new ornament. No sense of restraint will interfere with an innocent amusement; but the little animal, conscious of no pain, will soon exhibit gratification when arrayed in the representatives of future fetters.

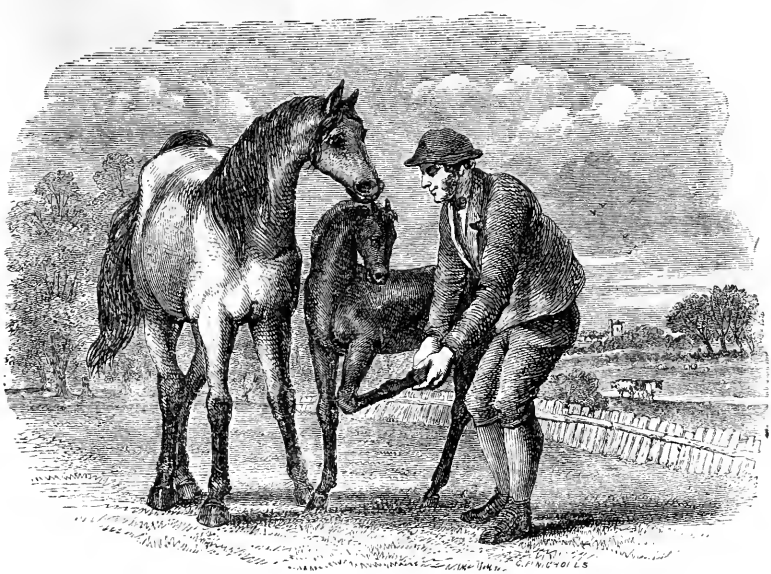


THE FIRST HARNESS PUT ON A FOAL.

At the same time the hand should be frequently passed over the body, and occasionally carried down the limbs, although nothing approaching a regular grooming can, as yet, be necessary. The fluff of the mane, the tail, the forelock, and the fetlock should, subsequently, be combed out very gently, the attendant taking care to praise the foal during the process, and feigning to feel ecstatic admiration after the performance of each operation. All animal life—even does the truth extend to the birds—is peculiarly susceptible to human flattery; for the German peas-

ant teaches the bullfinch to pipe, by dancing before its cage, playing to the captive, and only pausing after each tune to indulge in the pretense of a most extravagant delight.

The youngster should then be led about a meadow by its tiny reins: when perfect in this lesson, it may be fastened to its mother's head while the mare goes to or from its labor. But it must not be forgotten that a harsh word, hastily spoken, may efface more knowledge than a month of tender tuition can communicate. Gentleness and equanimity are of all value, when the confidence of young existence has to be won; for such a capacity, patience becomes something more than an ordinary virtue. Some shyness or show of resistance must be expected when the little foal finds itself first fastened to its mother's side, near the shafts of a light cart; but this will speedily disappear. The tiny feet should, at length, be raised, and afterward the horn be gently tapped or rapped against. These things should be repeated, till they are submitted to without any evidence of fear having been excited by the liberties. Such preparatory lessons ought to be given before the strength is sufficiently matured to be dangerous.

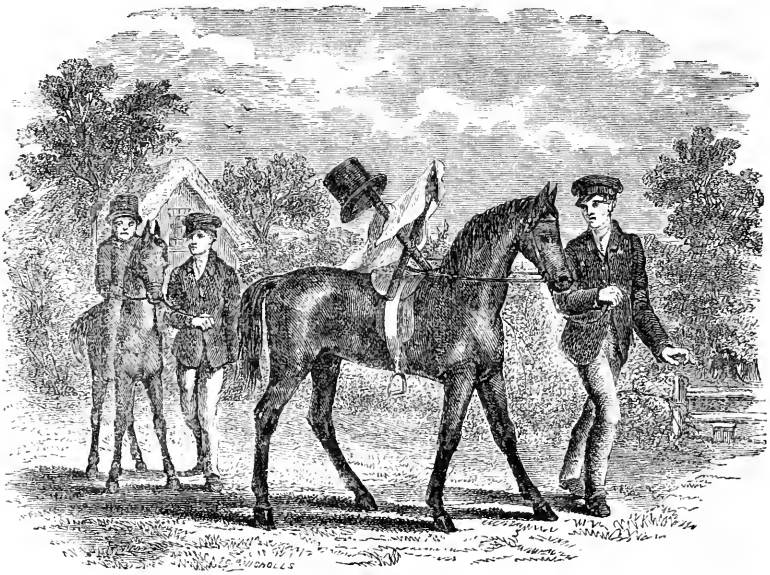


HANDLING THE FEET.

When the weaning has, by the process of nature, been accomplished, the colt should not be turned out and neglected until a determined time for "breaking in" comes round. It should still be sheltered and nour-

ished at the home, the previous lessons being enforced with greater emphasis as the age progresses, and the animal being taken occasionally to the forge, there to stand among other horses, but not to be shod. From its earliest day, man should appear as the necessary companion to every movement. It will soon learn to follow like a dog; thus it may enjoy a partial degree of freedom. But no weakness should betray its custodian into any resemblance even of over-indulgence, although the little creature will regard its tutor with affection, so he does not by his severity repel its advances.

When, however, the animal is no longer permitted to run by its parent's side, the education ought to assume the character of earnest.



RECEIVING THE FIRST LESSON.

A small snaffle should be attached to a regular bridle; when the youngster is led out to exercise, this harness should be put on. The surcingle should be exchanged for something resembling a saddle; ultimately, a dumb jockey ought to be mounted on the back. Upon the extended points of the last machine, an old hat and a cloth may be affixed. These objects will at first excite terror; but fear not being justified and the colt not being hurt by the dreaded presence, confidence will return. A sack, stuffed with straw, and moulded somewhat into the shape of a man, should then be placed over the dumb jockey. Little stirrups and a pair of representative legs should hang on either side,

while, to complete the whole, reins may be fastened to the bit; a portion of these last being formed of India-rubber, for not a few mouths are permanently destroyed by the unyielding tug of the heavy-fisted breaker.

All these liberties being permitted, if the instruction has been properly communicated, the pupil will have been rather pleasurably excited than permanently alarmed by the varied progress of its tuition. Such lessons, however, should be daily given, until the colt has attained its second year. It should then be regularly groomed; but nothing weightier than a dumb jockey being placed upon its back before the third year has been completed.

This age being attainded, a very diminutive lad may be put into the colt's saddle; but as boys are too apt to spoil the mouth by hanging back and holding on by the reins, the India-rubber had better be continued, and the jockey instructed not to interfere with the bridle, save when his so doing is necessary to guide the animal. Then the teaching of different paces may begin, the quadruped being always instructed in company with a perfectly trained old horse. All feeble intellects are apt at imitation, and a colt shall readily learn from example what coercion will fail to impart.

By the fourth year, the animal may be placed between the shafts of a very light gig, should its form indicate the creature not to be adapted for the saddle; at first it must be walked about a meadow. When the sound of the wheels is not listened for with evidence of fear, the pace may be quickened. Subsequently a boy may get into the vehicle, while the man remains at the colt's head. Succeeding this, the course should be directed by the driver; ultimately, after a man has for some weeks assumed the office of director, the vehicle may be taken upon the road.

Most harness horses are very imperfectly broken. The education is too hurried, and seems to be considered as perfected whenever the animal will merely take to the collar. The consequence is, there are more bad harness horses to be met with in London than creatures of any other description. Some have all spirit lashed or jaded out of them; these have become "slugs," or the poor wretches are almost dead to command and insensible to the goad. Others are rendered incurable kickers by the treatment to which they have been subjected. A third class are ruined by the unscrupulous use of the reins; and some of these will take long journeys, all the time holding the bit between the teeth. A fourth set are rendered cripples by the unfeeling employment of the bearing-rein, which disables the organs of respiration, and renders the lightest draught a terrible burden, by throwing the work upon the muscles of the limbs, while it compels these agents to contract at a fearful disadvantage.

Those who delight in a lofty crest may accomplish more by attention to the health and diet than by the absence of humanity. The strongest bearing-rein and the sharpest bit cannot exalt the head of a spiritless horse. Clover, tares, beans and peas, by promoting the strength and lending tone to the muscular system, will do more to raise the neck and promote gayety of spirit than the harness-maker can accomplish. Bearing-reins are disgraceful cruelties, and do no more than expose the moral condition or the pecuniary meanness of those parties who employ them,

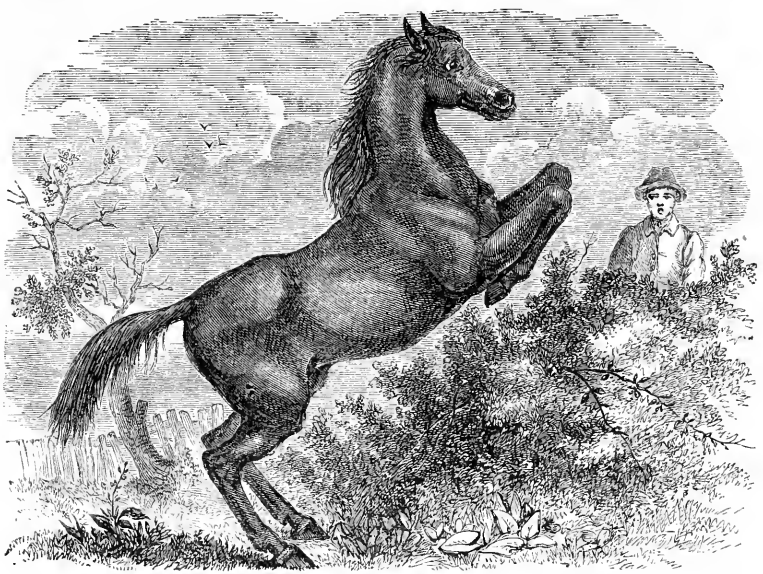
In corroboration of the importance of the neck as an aid to motion. the reader must pardon the author if he refers to a well-marked circumstance which has hitherto escaped observation. A horse with a thin or narrow neck, measuring from the crest to the wind-pipe, should always be avoided. It denotes bodily weakness, and testifies to an absence of spirit. The cervical region always first exhibits the token of approaching emaciation. If the reader will hereafter test the remark by observation, he will find all poor, exhausted animals, which carry the head as though its weight was oppressive, invariably have the neck much impoverished and altogether attenuated.

In short, a mere catalogue of the evils engendered by the injudicious breaking of draught horses, would occupy more space than the author has at his command. For this reason, the driver of a young animal should never be intrusted with reins made entirely of leather; a part of the length should be composed of India-rubber. Neither should he be permitted to flourish a whip. All severity is but an indulgence of the controller's temper; it is unnecessary with a life which is eager to learn and is anxious to obey. The sound of the voice or the gentlest indication should be sufficient to excite the ability of such a pupil. No one can doubt this, who has beheld its activity of ear whenever the horse is addressed.

After the foregoing fashion the education may be perfected, without allowing any professing brute, under the name of a "horse-breaker," to spoil the temper and to lay the seeds of future disease, by ill treatment of a few weeks' duration. Some years ago the author remembers meeting a man, who must have weighed more than fourteen stone, seated on a side saddle, and having a horse rug dangling about his heels. He was supposed to be "breaking in" a colt, rising three, for a lady equestrian. His employer must have been excessively developed, or her representative could only spoil the creature which was, ostensibly, preparing to receive a lighter burden and a more delicate hand. An accident was thus almost rendered certain, whenever the oppressed quadruped should be relinquished to its future mistress.

The matters which have been already pointed out being attended to,

and the force having been increased with the growing strength of the colt, the creature, after its fifth year, (if intended for the higher purposes of the saddle,) should be taught to leap. To place a rider on an animal's back and then to expect a bar to be cleared, is very like loading a young lady with a sack of flour as preparatory to a dancing lesson being received. This folly is, however, universally practiced; so is that of teaching the paces, when the quadruped's attention is probably engrossed by the burden which the spine has to sustain.

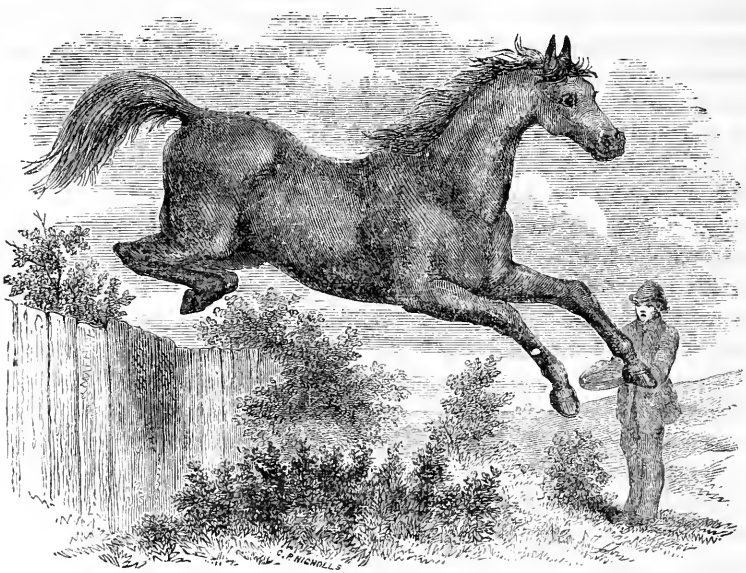


RISING TO THE LEAP.

Leaping is best taught by turning the horse into a small paddock having a low hedge or hurdle fence across its center. A rider should, in sight of the animal, take an old horse over this several times. The groom, who brings the corn at the meal hour, then goes to that side where the animal is not, and calls, shaking up the provender all the time his voice sounds. The boundary will soon be cleared. When half the quantity is eaten, the man should proceed to the opposite compartment and call again. If this is done every time the young horse is fed, the fence may be gradually heightened; after six months of such tuition, a light rider may be safely placed upon the back.

Instruction, thus imparted, neither strains the structures nor tries the temper. The habit is acquired without those risks which necessarily attend a novel performance, while a burden oppresses the strength, and

whip or spur distracts the attention. The body is not disabled by the imposition of a heavy load before its powers are taxed to the uttermost. The quadruped has all its capabilities unfettered, and, in such a state, leaping speedily becomes as easy of performance as any other motion



CLEARING THE FENCE.

Irish horses, all being excellent jumpers, are much esteemed in England. In Ireland, however, the fields are of small dimensions, and gates leading to them are uncommon. It is not unusual for a quadruped to be obliged to clear numerous walls before a certain pasture can be gained. Thus, to leap is rendered a prominent necessity of equine existence, for the steed must either jump or starve. By such a condition of their residence is the Irish breed made conspicuous for that activity which especially excites the admiration of Englishmen. Hunting, moreover, is a favorite pastime with the natives of the sister isle; therefore, while most Irish horses become admirable English hunters, the best of the English breed would be sadly thrown out by a short run in the adjacent kingdom. There can be, however, no reason why an English colt, if properly trained, should not become as fine a performer as the most expert or celebrated of those animals which are generally supposed to be born "fencers."

The seventh year should witness the horse taken into the active service of its master. Too early work, certainly, cripples the majority of ani-

mals; but there is not a circumstance of the many, rebuked in these pages, which does not aid powerfully in producing that miserable effect. All the customs about the equine race seem to be antiquated and injurious. An animal is taken up, is cast, is operated upon, is shod, is broken, and is sold often in the course of a few weeks. What a change has to be submitted to! Every incident of life is altered—the creature is suddenly called upon to endure a new existence. Is it a matter for surprise that nature occasionally rebels against so wholesale an innovation? Is it not a proof of the sweetness of the disposition which graces the equine race, that the majority can yield themselves up to the barbarity of such a terrible mutation?

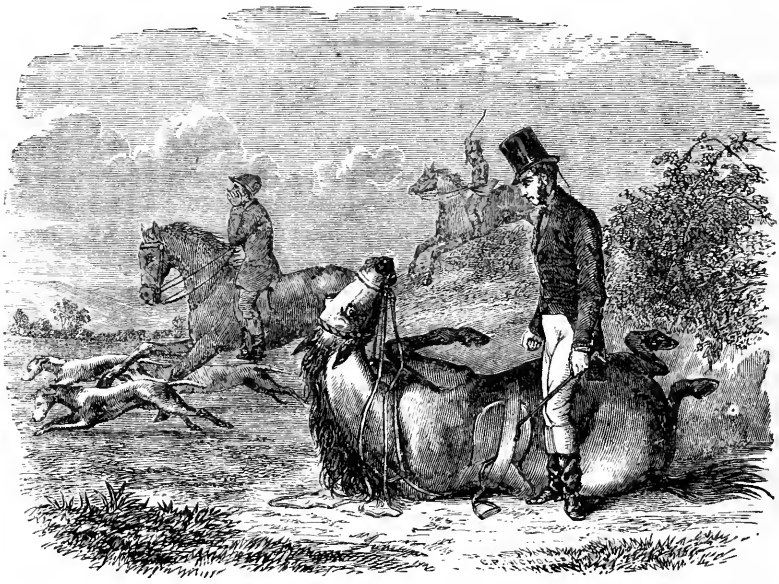
The author does not imagine that any person will immediately delay the breaking of his horse up to the period which has been suggested. To take a colt only every second year, and always allow seven years to pass before the animal is brought to market, would, assuredly, double the present cost; or, in other words, it would displace those animal weeds which now cheapen the price of horse flesh. No proposal generally succeeds in the modern age, in which expense is decidedly ignored. The reader is, therefore, not expected to alter his plans because the present volume has been published. Something, however, will have been gained if the book causes him to question his existing behavior, even though he should not modify his proceedings. A writer, however, is bound to state that which in his conviction is the truth, and to pay no regard to motives of mere expediency. Then, putting probability and expense, convenience and existing arrangements out of the question, let the reader deliberately say, whether very much of what he has read was not right in *theory*.

Then, as regards money expense, this might not be increased; for if the animal would cost twice as much, it would endure under a better system four times as long. The outlay, consequently, reckoned against the years of service, would be smaller; nevertheless, many a decade must elapse before that which the book declares is practically carried out. Still, if a few only are convinced, and none adopt the plans proposed, good will ultimately result; for the *right* must be known before it can be practiced, and man generally, in the end, does that which his better sense has acknowledged to be just. The impulse which urges him to such a course may be resisted; but it will, as a necessity of his existence, at length operate; for by such an irresistible power are thrones upturned, are institutions amended, and all human progress is ultimately controlled.

The animal being educated according to the foregoing description,—not being forced to strain its thews and to distort its limbs before the frame has fairly been perfected, but being gradually brought to the

mark of its requirements, and also permitted time to comprehend, before it is lashed to perform—being allowed the benefits of practice prior to being expected to exhibit its accomplishments—being simply treated after a manner that every grade of reason must recognize as just,—would come forth in the full possession of all its natural powers, and would distance the swarm of equine babies which now disgrace the thoroughfares, encumber the field, and ruin the race-course. It would be fitted to carry a man in any manly sport; and it would be able, not being distraught by bodily pains, to sympathize in the pleasures of its rider, and to share the amusement in which he delighted.

One peculiarity, illustrative of the present mode of preparing quadrupeds for exertion, is to be witnessed in most hunting fields. The young gentleman who pays hundreds, perhaps, for his "mount," and whose horse has been long under the trainer's care, is usually "*nowhere*" at the death, although he is at liberty to choose his way and to regulate his pace according to his pleasure; whereas the huntsman, seated on a screw which has been hacked throughout the summer, is generally foremost in the chase.



THE OLD HUNTER AND THE YOUNG STEED.

This seeming inconsistency evidently favors those notions which the author has presumed to promulgate. The wealthy scion of aristocracy

usually sits upon the young beauty, while the huntsman generally bestrides the aged animal. The older steed may be of little worth, and its blemishes may be numerous; but it has not been exhausted under a pretense of fitting it to endure; it has been hacked or ridden through the months when the younger quadruped was imprisoned in absolute idleness. The cheaper horse has been in constant requisition to exercise the dogs, etc., and therefore its health has been better preserved than is that of the gentleman's steed, which is either new to the sport, or has recently been taken from the supposed enjoyment of a *summer's* rest.

Training of hunters and of racers, as at present conducted, is neither a strengthening nor a refreshing process. The animal that has recently been relinquished by the trainer, instead of being able to endure extra exertion, is generally debilitated by those measures which were designed to produce a contrary effect. In the first place, three doses of physic, which are given under a belief of their tonic efficacy, are quite sufficient to disable any creature, that, like the horse, is possessed of a very large and a very long digestive track, or which nature, as a protection, had rendered almost safe from the purgative operation of medicinal agents. Before the bowels of the horse can be loosened, the primary effects of poisoning must be established. Aloes is the favorite purgative of the stable; but so nearly related are the quantity which relaxes and the amount which kills, that probably aloes has poisoned more horses than all other drugs in the pharmacopœia.

The reader, to whom such a subject is a novelty, may inquire what the intestines have to do with the muscular action. Supposing such a question possible, the author replies, that although the animal body is made up of numerous parts, and composed of various organs, nevertheless the whole is so united that no part or structure can be diseased, but the whole is affected. The intestinal track is lined with mucous membrane. When this surface is involved, prostration or debility ensues. Cold and sore throat are ready instances of this result; for both are consequent upon small portions of inflamed mucous membrane. Imagine, then, the utter prostration which must ensue upon the morbid excitement of so large a mucous surface as that which covers the digestive canal of a horse. Yet the trainer thrice induces this consequence, under an ignorant conviction that by so doing he confers upon the sufferer extraordinary nervous energy!

Purging is, however, only slightly more weakening than sweating. Perspiration acts differently on different specimens of the same species. One person is nearly always bathed in moisture; another invariably presents a dry skin. This shall hardly be moved without the surface of his body being loaded with copious drops of fluid exudation; that will

endure the utmost exertion, grow heated at any employment, but will not sensibly lose a particle by transmission. The trainer, nevertheless, treats all animals alike. He gallops every quadruped submitted to his care, as though the consequence was invariably beneficial. In vain does one horse break down, another refuse its corn, and a third exhibit swollen legs or crippled feet, while a fourth shall be only rendered more lively by the process which disabled its fellows. To sweat is a part of the trainer's system, and all the creatures which he is to train must therefore be violently sweated.

With racers, to these modes of debilitating is united a third,—excessive labor. The horse is tried at its topmost speed. These trials are frequent; although it is a common saying that a horse may be trained until it cannot move, still the practice is continued. The pace is quite as severe as it is in a public race; the weight is usually pretty much the same. It is well known that these trials are often run in less time than the contest for which they are thought to be only a preparation. Not withstanding the repeated disappointment and the frequent injury induced, such prejudicial experiments are continued, though not in every sphere of training. Men train as prize fighters, but they do not, before entering the ring, engage in numerous pitched battles. There is, assuredly, something wrong when the same law is stringent in one case but is inoperative in another, although both instances are supposed to be governed by the similar regulations.

The trainer of late years has somewhat changed his customs. Formerly, animals, while in training, were taken out of the stable twice each day. Now they are allowed only to smell the air once in twenty-four hours; but the period of labor is lengthened. The pace and the extent of time over which it ranges are important considerations when young life has to be dealt with. No less deserving some reflection is the burden to be carried during such exertion. Last of all, and probably as important as any, is the particular hour during which the natural habits of the colt fit it to sustain extraordinary fatigue.

The trainer's horses, ranged in Indian file, are now abroad from eleven: sometimes they return by twelve; at other occasions it is half-past twelve before the bridles are slackened; but generally one o'clock has struck before the saddles are removed. From eleven to one is the precise period when the sun attains its greatest altitude. At this time, those insect pests which torment the equine race are busy and abroad. It is true, the eye of the animal fits it to encounter the glare of the desert, but instinct disposes the quadruped to roam only when the atmosphere is cool, when all its annoyances have retired, and when moisture hangs upon the earth. The eye can better sustain the effects of light in its excess than the feet—

than the horn of the hoof can endure the results of dryness or the hardness of a baked English clay.

Yet the training horse is housed in stables the temperature of which is oppressive, the foulness of which must be most injurious to the prisoner. It is there shut in stench and in darkness to recruit its strength, and to gain fresh energy to endure further reduction. Exercised, when nature would dispose the animal to rest; forced to submit to a fainting warmth, when instinct would induce the creature to seek the coolest shade; ridden, till it almost fails; physicked, till it reels; and sweated, till the process makes it fear the opening of its stable door,—how is the trained quadruped nurtured? How is it supported, to fortify the body for bearing up against such numerous trials?

It is compelled to consume hard corn and fibrous hay. Water is stinted. The measures just described must generate a raging thirst; but the trainer, according to his system, refuses drink. The contents of the manger must aggravate the dryness of the throat; but the trainer begrudgingly permits the animal to imbibe the contents of the pail. The mode of feeding is productive of other evils. Purging and sweating are excused, as necessary to remove accumulations of fat. Corn and hay are those very substances which induce the accumulation of fat! Then, according to the present trainer's pretended system, one thing does that which another undoes. Whether nature is invigorated by such a process, the reader must decide. But, in the author's opinion, the existing method is a prejudice, which reason condemns, and which man is not justified in compelling any creature to undergo.

All the foregoing customs are, in the author's judgment, decidedly wrong. The stable should be cool—not cold—sheltered and airy. The loose box should be large enough for the limbs to be stretched and for the position to be varied, according to the inclination of the inmate. The kind of equine residence which the writer approves of has already been described; for information upon this subject, the reader is referred to the chapter treating of "Stables as they should be."

The food should not be such as requires stone or steel to comminute it. Horses' jaws are not machines urged by steam, by wind, or by water; but they are only bones acted upon by the contraction of muscular fiber. The exhaustion of a part must, as has been already explained, affect the whole; the exertion of extraordinary power in the head will, therefore, not refresh the limbs. Feed the animal, while being trained, upon softened, not upon watery substances. Do not oblige the body to supply its own moisture, for that is to deprive the system of part of the nourishment which should be devoted to uphold the strength.

As concerns the articles of food, these should not consist of oats and

hay, although a portion of either may form a part of the sustenance. There are certain substances the nutritive qualities of which are expended in the formation of muscular fiber; other materials are devoted entirely upon the adipose tissues. Among the last prominently stand the favorite provender of the English stable. A little of such nourishment is needed to supply the exhaustion of activity: so much should be presented. Of the other description—as beans, peas, vetches—there is a numerous tribe of legumens or plants, which present their seeds in pods. Hay should be made of these substances, by the seeds being sown broadcast and mown when only in flower. It is unfortunate that there exists a belief such articles are of too stimulating a nature to form the larger part of the stable diet. That, however, is a point which can only be decided by experiment; and the best proof that no trial of the kind has been made, is afforded by the needful preparation required for its institution being unknown. However, the general custom of maintaining agricultural teams upon green vetches certainly does not countenance the notion that peril necessarily attends the adoption of such a form of diet.

The hours of exercise should be amended. The morning's work should be performed at the earliest dawn, when it is getting light. The evening's labor should take place at dusk—after sunset. The dew will then moisten and refresh the feet; the cool air will brace and revive the spirits. At such hours horses are always full of animation. At midday the creatures incline to repose. The animals, during the greatest heat, congregate under trees, hang the heads, and only by the nervous stamping of the feet or the lashing of the tails, testify to being conscious of the myriads which buzz around them.

No animal should be trained with a weight upon the back. It should be led by a man, mounted upon an older horse. The exercise should never be carried beyond that which is needed to support the health; it cannot possibly be otherwise than injurious, when it is pushed to the point of exhaustion. It betrays the folly of the present system, when we hear a trainer assert that the legs and feet cannot endure the work necessary to promote "condition." Condition could be induced without a single gallop. Trotting—easy motion—is all that is absolutely imperative; only the exercise should continue longer than is at present usual on training ground. A horse thus conditioned would be brought to the post with its energies fresh for the trial—not lamed, nearly crippled, nor thoroughly enervated.

Breaking and training both require serious revision. The first needs to be made level with the improved civilization and gentler habits of the

present time; whereas it is now almost that which it has been from the earlier period of authentic record.

No notice is taken of the presence of railways; of the general custom of using fire-arms; of discharging fire-works, or the almost universal habit of gas illumination; not to mention the various strange sights and novel exhibitions which the modern streets and highways frequently display. Accidents, neither few nor far between, are provoked by these things; but the breaker, nevertheless, refuses to acknowledge their existence. He views his duties as perfected, and as needing or admitting of no improvement!

So also the trainer. His system has been only influenced by the evils generated through the customs which he obeys. Beyond the race-course, he sees and acknowledges nothing. Railways bring crowds down to all the great contests; but he still trains his horses to run in stillness and in solitude. Many quadrupeds "shut up," when the people shout: the cause of this conduct the trainer refuses to recognize. Numerous animals only show their qualities after age has familiarized them with the tumult of the mob; still, the trainer can see no intimation in so evident a sequence, although intimately associated as cause and effect.

Then, with respect to aloes. This drug should be discarded altogether. Neither should any of the different nostrums, now common in the stable, be employed. Supposing the abdomen to be larger than is desirable, its amendment should be controlled by condensed diet, and sufficient but easy exercise. An occasional drachm dose of iodide of iron, which medicine is both an absorbent and a tonic, may, at long intervals, be exhibited. Where costiveness prevails, a bran mash or two, with a bundle of green meat, would counteract the symptom. To improve the coat, liquor arsenicalis, in ounce doses, should be administered; for this preparation operates upon the integument, by strengthening the body.

The trainer may exclaim against green meat; but it does not retard condition or generate weakness like aloes, and if employed as a medicine, it is of all importance. Beyond the drugs mentioned, nothing should be given, save under professional advice: the lockers should be cleared of all medicinal agents. Other compounds are not quite abolished; but these should be exhibited only by the veterinary surgeon—the quadruped being physicked as little as possible. When trained after the method which has been indicated, all the dangers of the process would be avoided: the health, not the judgment of any interested individual, would declare whether the instructions had been obeyed, or the orders had been violated. Mystery and impudence would be rendered inoperative, and every animal started for a race should return to the post.

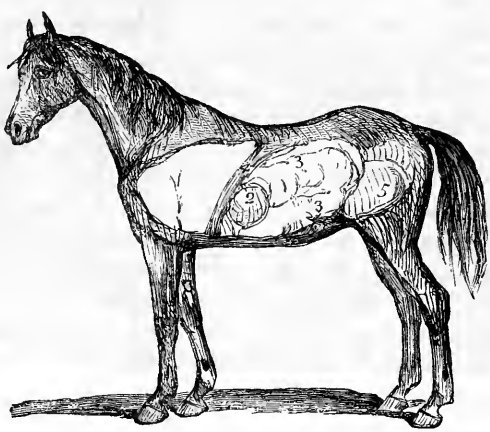
Many of the starters should not, as now, be left, blown, crippled, or exhausted, in the middle of the course.

There is an enemy which the trainer little suspects, but which affects the health and the honesty of his establishment. No regulation can be rigidly carried out, when its adoption is dependent upon the whim and the humor of those undersized lads who lounge about the door of every training stable. These boys are not half employed: they delight to excel each other in "larks," in daring, and in mischief. They are very seldom trustworthy. The reason which causes them to be retained, is the lightness of their bodies. Their duty is to groom and to ride the animals which are placed under the trainer's charge. But the first business is lightened by a series of unfeeling antics; the last is the act which very few of these youths can properly perform. They get into the saddle and manage to remain there; but how far they study anything more than that, is demonstrated by so few of the urchins being promoted to jockeys, for which calling the trainer's stable should be the regular entrance.

Many a horse will refuse to win a race from stubbornness of temper. When the way is clear before it, the racer not unfrequently "shuts up," and cannot be induced to exert its ability or to win. Whence is derived that perversity which loves to thwart the power a slave lives but to obey? It is not natural to the breed or to the tribe. Pass through a flock of yearlings, and the path is interrupted, positively impeded, by a host of velvet noses, each demanding to be noticed. Way is difficult to be made through so much importunate affection! However, walk down the gangway of the two-year old stalls in any trainer's stable, and "'ware horse," "'ware heels," is frequently shouted out, while the excess of white displayed by each animal's eye palpably denotes the reason of the warning.

The trainer may as well break the leg of a colt as ruin its temper. The spirit cannot be right, when the temper, which governs it, is permanently warped. The power to win is of no service, if the inclination to exert it does not also exist. The boys tease and plague the creatures, whose fate is, by the rules of training, not so blissful as to admit of such insults being patiently endured. The act offends, and engenders a desire of resentment, which constitutes the "jolly fun" of the lads. The more excitable a colt may be, the more valuable it is likely to prove to its owner; but in proportion to its value is the animal exposed to the pranks which may ruin its chances in the struggle. These things, of course, are not practiced with the trainer's knowledge; but, nevertheless, they are all but universal, and will become more general if the custom of employing uneducated *boys* is not abolished.

Another foolish practice is the starving all animals when most in need of support. This is common with racers and with hunters. When extra energy is imperative, the trainer, by his conduct, pursues the measure best calculated to destroy all inclination for exertion. The plea urged in defense of such folly is, that a loaded stomach oppresses the breathing. This is true enough; but the evils which result from gluttony do not establish that good only can ensue upon starvation. Let the trainer experiment upon himself, and decide whether a light meal or no meal at all is the better preparation for an extraordinary performance. Many trainers assert that a full stomach rests upon the diaphragm, and thereby is detrimental to the respiration. This is a mistake. The digestive sac is pendent beneath the respiratory agent· a fact which an inspection of the annexed engraving will amply illustrate.



DIAGRAM, TO ILLUSTRATE THE RELATIVE POSITIONS OF THE STOMACH AND OF THE DIAPHRAGM.
1. The lungs. 2. The stomach. 3. The intestines. 4. The diaphragm. 5. The bladder.

If the horse is about to follow the hounds, let a meal of concentrated nourishment be presented. This may consist of a quart of softened malt, or a two-pound stale loaf, moistened with fluid, or a few soaked ship biscuits, or anything of the like nature. This quantity must drive away the pangs of hunger, and the languor attending the sensation; but the author confidently asserts the impossibility of such a repast proving detrimental to the respiration. Then, let every gentleman, who follows the chase, put into each coat-tail pocket a penny loaf. When a check occurs, the rider should dismount, and, having soaked one portion of the bread in any brook or pool, present it to his steed. Such a quan-

tity would be indeed only a snack; but it would be a welcome refreshment. It would serve to repel the approach of inanition, and enable the quadruped to join with spirit in the next "break away."

On the course, excess of weakness has lost many a race. Why should such a system be longer pursued? Why are famishing animals, when prostrated by the want of nourishment, enervated by actual hunger and by thirst, only considered qualified to exhibit fleetness? Is not the idea, when plainly stated, a self-evident fallacy? Nor is it the only error

FED BETWEEN THE BURSTS.

which besets the antiquated customs of the trainer. It is usual to change the shoes, in which the animal is to run, for what are termed "plates," or, in other words, for shoes so light that fearful accidents are reported to have occurred from these inadequate protectors of the hoof. Such things have broken during the violence of the contest. Is there not a foppery in the notion of making a horse's shoe so slight that it shall lose its property of protection, to gain which advantage alone caused the animals to be shod?

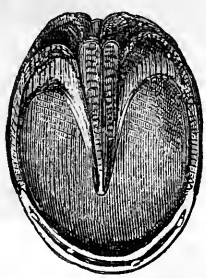
All men who have written about the horse agree in regarding the shoe as an evil only to be endured because of its necessity. Its chief injuries are accomplished by fettering the quarters as well as the heels, also by throwing the elastic frog out of use. Upon the action of these very parts of the horse's foot the bound, the spring, and the grace of the

animal in no small degree depend. The operation of such organs should, therefore, be of more importance to the thorough-bred than they are to any other description of quadruped. Were these structures never fettered, but the colt left to comprehend their use, its agility would be increased, its stride would be lengthened, and its speed augmented.

The racer chiefly employs the toe to bear weight upon, or this part has to endure nearly all the stress sustained by the hoof while the creature is running. Now, there are shoes known as "tips" which protect the forward horn, but which leave the elasticity of the backward portions of the foot unfettered. This form of shoe is no novelty. It is no crotchet of the author's, puffed into notice by a morbid fancy. It is very humiliating, but it is necessary to make such an acknowledgment, to take from a recommendation all suspicion of the personal or interested motives which are too frequently urged against those who advocate any improvement in stable practice. The author is impelled to make the suggestion simply by his interest in the subject. That the reader may comprehend the difference between the two forms of shoe, and respectively denominated a plate and a tip, the illustrations of each are here reproduced from the article on Shoeing.

A MODERN RACING SHOE.

AN ANCIENT RACING SHOE.



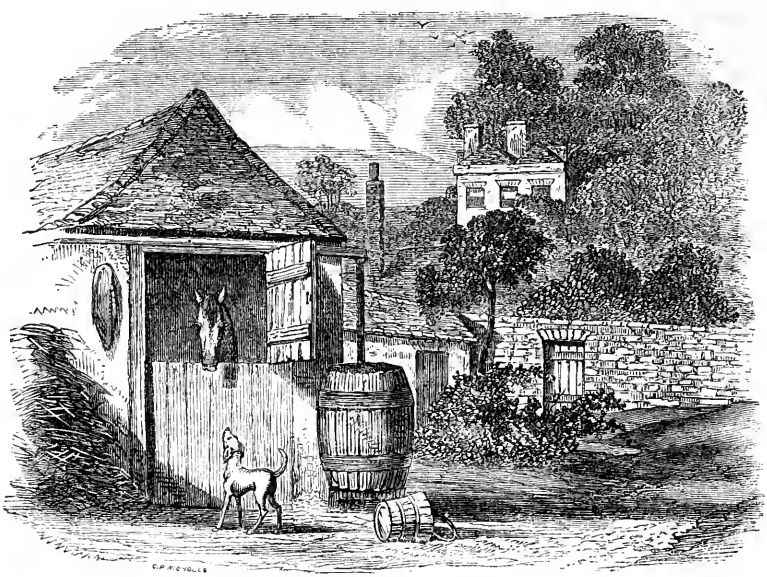
A TIP.

A greater injury is inflicted, however, than has yet been named. Blood horses are often affected with brittle hoofs. This condition of horn renders the nailing on of shoes, even in ordinary cases, a matter of some difficulty. It is a principle with smiths never, if possible, to drive a nail twice into the same hole; and these fastenings being made to pierce the hard outer covering of the wall, the hold is, at all times, in danger of breaking away; but when the horn is abnormally dry or brittle, the nails can scarcely be rendered secure by any possible artifice.

The kind of hoof which prevails among the breed renders it very desirable that the shoes generally worn should never be changed. Tips being of smaller size especially, if a bit of steel were let in upon the toe,

if the shoe was formed of the very best metal, as the animal is invariably exercised upon turf, need not be much heavier, if at all weightier, than the present racing plate. Any difference which possibly should exist would, however, be counterbalanced by a healthy condition of horn induced by the greater freedom that must be consequent upon an adoption of the proposed plan; while if a slight additional burden be imposed, that must be much more than counteracted by the new organs to be brought into activity. The frog and the heels, which are now made useless, would lend lightness to the tread, and an ease of motion would thereby be secured.

Another evil is produced by the peculiar notions which the order of trainers have for ages stubbornly adopted, and which gentlemen of education seem to have implicitly accepted. Man himself is not more gregarious than the horse. Men congregate in towns; but it is not unusual



SUMMERED.

to encounter the individual whose delight is solitude. The equine race, when free to exercise a choice, are always seen in flocks; and a solitary animal is never to be met with. Yet it has been found that the severity of eight months' solitary imprisonment cannot be sustained by human culprits. The trainer, however, permits his countenance to radiate under the smiles of benevolence, when he talks of turning an animal into

a loose box and of granting the prisoner more than *half a year of rest.* He never appears to think, nor does his employer seem to think for him, whether such a notion be possible. No one, apparently, questions whether stagnation can be a punishment to the living embodiment of muscular activity! We see the heads of quadrupeds, wearing the impress of dejection and looking the images of hopeless misery, hanging over the doors of their cells; but no one reads the lessons which such melancholy spectacles plainly indicate. The language of truth is not understood, and cruelty is perpetuated by ignorance.

When such things are general through the land, is it not justice which has stigmatized England as "the hell of horses?" Does not the heart shudder, as it contemplates the sufferings which have for ages been perpetrated upon the most generous and most self-sacrificing of man's many helpmates? Why doom a quadruped to months of positive stagnation? What is it that converts the intended generosity, where the horse is concerned, into an excuse for actual torture? Why is every act and every intent, when directed to this creature, made to augment and to increase its present load of most unmerited suffering?

Wherefore should the hunter, when the season is over, be shut up or cast aside, as though its life or its feelings were unworthy of consideration? It would be better for the quadruped's health and its happiness, if the attentions to its personal comfort were continued. It would repay the trouble, were it regularly groomed, and fed upon the stable provender. Not turned into a box; its body being, for half a year, uncleansed, and its health being debilitated by a superabundance of green fodder. It would thrive better, were it gently hacked by a considerate proprietor. Taken out occasionally, and quietly ridden down the shady green lanes of the neighborhood. Never bustled, but sometimes breathed over an even piece of turf. Ridden always for pleasure, but never saddled when business is to be transacted. Such a life might not allow the groom so much leisure; but it would materially lessen his labors when the hunting season approached. The animal would need but little "*conditioning.*" Improper sustenance would not have induced dropsy; nor would the joints have stiffened by a long period of enforced inactivity.

In conclusion, no horse should be considered fit for general purposes until it has been educated to stand fire,—to hear the rush of sudden noises without alarm, and to remain quiet while a railway whistle is sounded by its rider. Were such things taught, how much misery would be avoided! But the public, as a body, have no faith in goodness, although they profess to believe that the *All-good* is the *All-wise.*

Does it not sound like a fabrication, to say that in the land where many barbarities are openly practiced by the higher orders of society,

there should exist a combination, supported by the rich, established to suppress cruelty when perpetrated by the lower classes? The society alluded to should not be abolished. As an institution, it is right. But are the patrons in their proper positions, when punishing cruelty to animals? The highest personage heads both the doings of the race-course and the corporation which professes humanity. But which is worst—the sin which, for its pleasure, tortures the young, or the want which, hardened by adversity, disregards the pangs of the aged? Let the society be continued; but let the race-course also be amended. Render it a rational amusement: let it no longer remain the dominion of vice, upheld for gambling purposes, and maintained by the heartless waste of that life of which man, in gratitude, should assert his right to be the natural protector.

CHAPTER XV.

CARRIAGES—THEIR COST, THEIR MAKE, THEIR EXCELLENCES, AND THEIR MANAGEMENT.

THE following particulars are derived from the highly respectable establishment of Edwin Kesterton, (late Horn,) a well-known firm which transacts business at No. 93 Long Acre. The writer is directly indebted for the facts now stated to the generosity of Mr. John Ronald, the gentleman to whose intelligence is intrusted the conduct of the before-named business. If an extended observance, assisted by years of experience, can lend value to information, certainly Mr. Ronald may advance a good plea to be heard when speaking upon such a topic. And the editor cannot forbear expressing a profound sense of personal obligation for the unreserved and satisfactory manner in which all statements were communicated, and unhesitatingly submitted to the writer's discretion. In short, Mr. Ronald's mode of communicating his knowledge speedily gained the confidence of his listener; but as individual characteristics cannot be embodied in a written declaration, the circumstance is only mentioned, to assure the reader that the following details are worthy of his acceptance and deserving of his consideration.

Carriages are of various kinds; they differ very widely as to cost. Every maker will manufacture every variety which may not be under the protection of the Patent Office. Certain houses, however, may be famed for a certain description of conveyances,—as that of Tilbury for the gig, which is known by the name of its inventor.

The following statement of charges is to be regarded only as a probable approximation to the cost of those articles which are specified. Nothing assuming the form of a definite figure could be named, because the orders given by gentlemen are so essentially opposite. Thus one may be contented with a simple crest or two; but another will insist that his vehicle shall display the fullest heraldic adornments. Such differences in taste regulate the extremes which divide the charges made for the same description of article when furnished by two equally respectable manufacturers.

The gentlemen who profess Herald painting are remunerated accord-

ing to the time occupied, the amount of work done, and the elaborateness of the design which has been executed. The scale may, to the uninitiated, appear to be gifted with a great power of expansibility; but this quality must reside in every form of art. Heraldic painting demands extreme exactitude; for no liberty is allowable in this practice. Everything is strictly defined. All examples must be rigidly followed. Consequently, such a pursuit must be no inconsiderable tax upon the memory, while occasionally it necessitates the most laborious research. Such qualifications, moreover, should be paid for, when exercised merely for the gratification of another.

To convey a rough idea of the expense of heraldic ornamentation, it may be stated that two simple crests painted on a gig might, probably, be executed for fifteen shillings. Coats of arms—such as were usually seen on the panels of carriages—begin at two guineas; but the more elaborate embellishments of this description—even should they demand no research and require no particular skill—cannot be executed at a less cost than eight or ten guineas. State vehicles, however, generally abound in fanciful adornments. These have exceeded, for heraldic painting alone, four or sometimes five hundred guineas. Such a sum has been paid for the time, the labor, and the talent bestowed upon a single carriage which, when thus embellished, could be seldom used!

The foregoing figures possibly may surprise most readers; but there are several circumstances to be considered as tending to justify such charges. In the first place, the community of Heraldic Painters are few in number; and the uninviting character of their studies, with the prolonged probation to be undergone before the novice is permitted to practice the art, will probably prevent the body from ever becoming a large association. Then, the employment of the proficients is very much regulated by fashion, which does not, at present, appear disposed to favor the display of family honors. The pursuit, when regarded by itself, may be liberally recompensed. Yet it is not an every-day necessity; but, being once finished, the work will probably endure for years, while the vehicles upon which the resources of the art are most expended are not articles of general use. Few heraldic painters, therefore, accumulate fortunes; but the great majority live to repent having adopted that which the reader may have felt inclined to regard as an extravagantly remunerated calling.

Also, connected with the carriage builder's trade is a still smaller body of industrious and of deserving persons known as Coach Draftsmen. These are the artists who labor upon those neat and picturesque drawings which are always submitted for the approval of that gentleman who may order a new vehicle to be built.

The primary requisite for such a profession is firmness, combined with extreme delicacy of touch; an eye capable of appreciating the nicer rules of art, united to a mind fully endued with the elements of grace, or with that flow of line which is inseparable from all elegance of design. None of these qualities can be dispensed with in the person who embraces the pursuit. Much of the drawing is, no doubt, executed according to measure and to rule, or is purely mechanical; but the qualities which alone can fit an artist for eminence in his peculiar calling are assuredly governed by something very different from and far higher than the patient employment of the compass.

Prior to considering the cost attending the manufacture of various vehicles, it may be proper to state some of the reasons that render an admirably built carriage apparently so expensive. While this is being done, the reader is requested to remember that the present time has frequently been designated as that of competition. Artificers are said to have become too numerous for all the members of any trade to live by the practices of honesty. The people following a particular business are reported to be more than half employed in cutting one another's throats. We are told that no sooner does the tradesman establish a thriving traffic, than another starts an opposition, and under-sells him.

Certainly there is no realizing those snug profits which our fathers talked about having secured, during the termination of the last and the beginning of the present century. Carriage builders are not few in number, neither do they constitute a close society. They are numerous as a trade, and each member of the calling is eager to transact business. Still, the prices are not lowered by the spirit of competition. A good article is yet worth nearly the same money which it has always cost; and the patience of the reader is earnestly requested while an attempt is being hazarded to explain the cause of so prominent a peculiarity.

Before a carriage can be properly built, the conjunction of many distinct callings is imperative. They must all work together, and should all be actuated by harmony of spirit. The various parts are almost innumerable; but each must be adjusted with the minutest nicety. To collect, to retain, and to practice a body of men in such united labor to a common end; to entice artisans, who can exhibit the perfection of their crafts, to relinquish all idea of individuality or of independence; and to induce such people to blend their efforts or to allow only one spirit to actuate a large society,—is no mean undertaking. Yet this must be accomplished; nor is that all, for such contrary elements must be retained, each mutually assisting the other.

As the proprietor succeeds in accomplishing this object, so will be his success in the coach building business. Let the reader, however, under-

stand that a good set of workmen is not the only necessity required for this business. The tradesman must be himself distinguished by the loftiest of human attributes. He must be also willing to sink his individuality in his pursuit, and must be ambitious only for a general result.

The coach builder works with very expensive woods, the original cost of which is materially increased by the lengthened periods that these articles have to be kept before being used. The time required to season thoroughly a piece of timber, for the choicest of ordinary trades, would be altogether insufficient for the coach builder's purposes. Wood must not only be seasoned, but it must be rendered so perfectly hard or dry as shall make shrinking or warping, even in the slightest degree, totally impossible.

Such a necessity compels the coach builder to keep a large stock of the timber which he employs. This wood, when introduced to the workshop, must be in a state of the utmost perfection. It must be possessed of the greatest strength and the most approved hardness which its fiber is capable of exhibiting. Those characteristics can only be attained where the material is particularly fine in grain. Of course, such a quality makes the substance specially retentive of that moisture which circulated throughout every product of the vegetable world. This last property gives rise to the necessity which obliges every log to be so long kept before the tradesman dare have the wood admitted within the precincts of his established manufactory.

The tools employed to cut such timber must needs be of exquisite temper, and of course are equally costly to purchase. Moreover, the simple cutting of wood almost as hard as metal is not sufficient. The workmen must be capable of adapting the various parts so closely that these shall, when put together, possess the strength of one entire piece. The several junctures must be imperceptible either to sight or to touch; the different portions must fit as though they grew together. No amount of jolting, no possible shaking should cause the work to yield even a hair's breadth. Should the carriage be injured, though of course the paint must be damaged, nevertheless the frame should remain firm. Every part of the vehicle should be formed to endure the rudest treatment; should be able to sustain, uninjured, the long rattling over the roughest of country roads. Unless his products can bear such usage, no tradesman need write "*Coach Builder*" subsequent to his name.

The tools sold to carriage builders are quite distinct from those manufactured for the cabinet-maker or the joiner. The first articles are known by different names, and are kept as a distinct class of superior goods. An ordinary chest of such tools, possessed by every average journeyman, could not be purchased under thirty, or probably forty pounds.

This price, in order that it may be justly appreciated, must be regarded in connection with the class of men to whom it refers; also it must be considered in association with the facts—that workmen provide their own tools, and that each man is confined to one particular species of toil; that the members of every shop often borrow and as frequently lend; and that every tradesman is educated to adopt various resources. Thus one instrument is often compelled to serve several uses.

An ordinary carriage builder can generally command two guineas a week. That sum, however, does not fairly represent the earning of all workmen, when viewed as members of one body. Most clever artificers will not engage by the period; but they prefer to be paid by the piece. A person of no more than average talent, when employed at piece-work on the ordinary run of jobs, can gain from two to three guineas by six days' toil. Thus every man in the trade has a direct stimulus to improvement, the higher wages being a constant spur to excite the workpeople, none but the better sort of whom are engaged on the more remunerative labor.

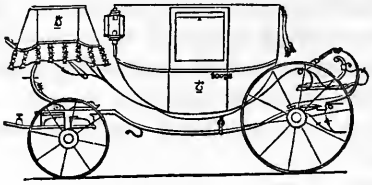
Then, of the many trades which the coachmaker employs, each must be the perfection of its order. The upholstery must not be merely tacks or tacking. All must be sewn with the stoutest thread, and nailed with an intention that it should never loosen. The smith's work must be forged with an exactitude which is little expected in the general sphere of the anvil. The painting and the varnishing must be carried to the refinement of possible finish. In short, the best of many opposite callings must be united before a carriage manufactory can be instituted.

The business which necessitates the junction of such adverse kinds of perfection, of course cannot be conducted cheaply. The climax of ability is a commodity which will always command a ready sale, and for which, in every market, there is never a lack of bidders. He who wishes to obtain it, must not, therefore, haggle about remuneration; but be prepared to meet its demands with liberality. That circumstance, taken in conjunction with the expensive nature of all the materials he employs, disables the coachmaker, who is anxious to do justice to his patron and to himself, from producing a cheap article.

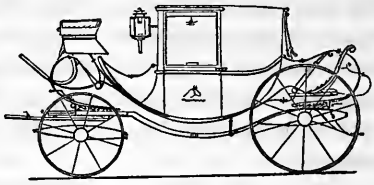
A full dress coach or chariot, such as once were the only conveyances permitted to approach St. James's Palace on a Drawing Room day, cannot be properly made for a less sum than four hundred guineas; if the taste of the customer should be very fastidious, either article may cost seven or even eight hundred guineas. A state carriage must be charged for according to its adornments, which can almost be carried to any extent.

The state carriage which was built to order for a particular monarch

had solid silver let in upon its exterior; while the ground was composed of the choicest colors, overlaid by the most exquisite decorative painting.

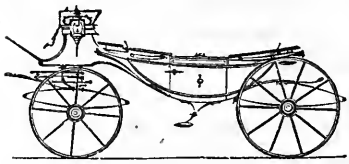


A DRESS CARRIAGE.

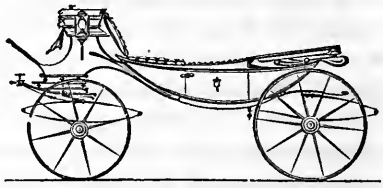


A CHARIOT.

The charge for this toy was seven thousand guineas. The Sheriffs of London, however, manage to ride in a state carriage at a more economical rate. Their vehicles are commonly hired for the year of office; and the expense is only varied by that amount of adornment which each new dignitary may please to command. The ordinary charges are seldom lower than eighty guineas, and are rarely higher than one hundred and sixty guineas.



A BAROUCHE.

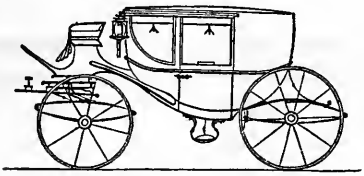


A LANDAU.

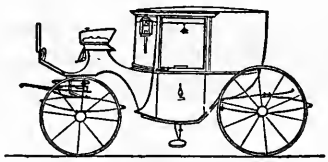
A neatly-built step-piece barouche is certainly an elegant conveyance, though, at the present moment, hardly so popular as it was a few years ago. Vehicles, like most other things, are subject to the arbitrary dictates of fashion, and this circumstance renders the coachmaker's stock, which must at all times be costly, particularly hazardous. However, the risk which is inseparable from the character of the trade must be covered by the profit account when the books are balanced. A good barouche is an expensive luxury; since this conveyance cannot be manufactured under one hundred and sixty guineas, while it may, without much extravagance, be easily made to cost two hundred and twenty guineas.

The landau, which has now become almost the exclusive property of the ladies, is even more expensive than the barouche. But with this fact it may be necessary also to state that the landau requires to be especially well built, and must be highly finished in every part. It

ought to be particularly light in appearance, and so nicely balanced upon its springs that, though perfectly firm, the touch from a finger nevertheless could set the body in motion. Such properties necessitate the very best workmanship which can be procured, even in the carriage trade. Consequently, this kind of conveyance cannot be properly raised for a less price than two hundred guineas; but as the feminine taste appears to be more cheaply satisfied than are the masculine desires, the cost of an ordinary landau seldom rises above two hundred and fifty guineas.



A CARRIAGE WITHOUT C SPRINGS.



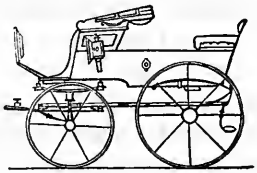
A BROUGHAM.

A coach without the circular springs, or C springs, as they are commonly called, and also wanting a dickey or seat behind, is now manufactured according to various patterns. This kind of conveyance is, at present, frequently encountered in the streets of London. Of course, it is difficult to name the price of an article which is generally built in accordance with some arbitrary command, and which is not governed by any acknowledged regulation. The cost, therefore, can only be controlled by the time, the labor, and the materials which are expended in the construction; but this may be roughly calculated at something between one hundred and ninety and three hundred guineas. Such, however, are light and pleasant carriages, sufficiently roomy to ride at ease in, and not difficult to propel. They are rapidly ascending on the scale of public favor.

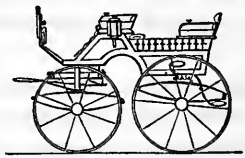
Broughams seem to be made of various forms: some vehicles bearing this name are very little better than the more cleanly order of street cabs. But such a brougham as no gentleman need be ashamed to own, or need blush to see his crest emblazoned on, should be built for one hundred and thirty to one hundred and eighty guineas. These vehicles have been much improved of late. They were formerly manufactured of a weight which was a severe tax upon the strength of one horse, and they were at once vulgar both in appearance and in size. The draught has been greatly diminished, while the aspect has been so far improved as to advance a claim to elegance. Those proprietors who still cling to a brougham which can accommodate more than two persons usually

have the equipage drawn by two small horses. The carriage, thus propelled, looks showy, and is moved with perfect ease.

A mail phaeton may occasionally be seen driven through the park. But this form of vehicle is not now so much used as it was a few years ago; but when well appointed, it certainly has a most aristocratic appearance. Few ladies, however, like to ride in such a conveyance, unless they occupy a seat in the front compartment, and are accompanied by the husbands, who are driving. Such a prejudice consigns half of this carriage to the servants, while the length of the phaeton renders its draught so heavy as to necessitate the employment of two horses. Custom, therefore, makes these vehicles expensive to the proprietors, although the first cost is not so large as the style suggests. One hundred and forty guineas or one hundred and sixty guineas will generally cover the purchase of the mail phaeton.



A MAIL PHAETON.

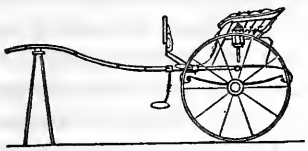


A FOUR-WHEELED DOG CART.

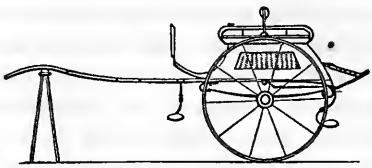
The four-wheeled "dog cart" has lately come into general use. Such conveyances possess a more gentlemanly, and have an infinitely less dangerous appearance, than the two-wheeled "turn outs" bearing a similar designation. When driven with a pair of spirited horses, they may proceed at almost any pace with perfect ease and safety; running very light, yet affording ample accommodation for every portion of the load, and looking the perfection of a sporting "concern." They are, moreover, when compared with the sums at which the more showy properties of most carriages are purchased, not to be esteemed expensive. A good article of this description can be bought for seventy guineas, and the most elaborated seldom costs more than one hundred and twenty guineas.

Gigs of different denominations are mostly of one price. This figure ranges from forty to seventy guineas. It matters not the shape, whether it be a Stanhope or a two-wheeled dog cart, the expense is pretty much the same. The last form of vehicle is now coming into very general use; but when fully loaded, it appears dangerous, and is a severe tax upon animal strength when driven at the rate which most drivers seem to prefer. Hence the obvious origin of the four-wheeled dog cart, which,

when harnessed to a pair of horses, is free from those objections that the original form of this conveyance invariably suggested.



A GIG.



A TWO-WHEELED DOG CART.

A well-built carriage is, consequently, a rather expensive convenience; but, unfortunately for the honest tradesmen, few persons are qualified to advance an opinion upon the conveyance. The reader, therefore, must accord his indulgence while the author endeavors to explain the points which characterize a well-manufactured article. In the first place, the wheels should revolve without perceptibly varying from the line which they indicated when the carriage was stationary and the tires were viewed from behind. They should not, during rotation, incline either to the right or to the left, for if they, when in motion, alter even a hair's breadth from such a line, it is proof positive that the wheels are faulty. They should move slowly and quickly without making the slightest sound: they should glide noiselessly over all even surfaces, and with no more audible disturbance than is unavoidable, they should travel, at the most rapid pace, over the roughest highway.

The body should be poised so evenly as will answer to the gentlest force, and be readily swayed by more violent action; but however excited it may be, the body should never lean to either side, and, the impetus being arrested, it should speedily become stationary. All the parts should be firmly united. When violently urged, the movements should elicit no creaking; the steps should not jingle; the windows should not rattle; and, above all, when the outlets are shut, a person inside should be incommoded by no perceptible draught.

That time may not injure such properties, the coach-house should be warm, should be well aired, and should be perfectly dry. Damp is ruinous to the paint, to the ornaments, and, in short, to every part of a conveyance. As the most used carriage must be a greater number of hours within its house than it can possibly be abroad, so for the larger portion of its existence is it exposed to the operation of those enemies (when any exist) which will be silently destroying. The length of time which a vehicle improperly housed may endure, will of course greatly be dependent upon the amount of evil with which it has to contend; but only a moderate degree of moisture will so speedily tarnish as shall

necessitate restoration at least twelve months prior to the usual season for that renovating process.

A good coach-house should neither by door nor by window communicate with the stable. Such openings are usually present in most London buildings, and are evidently allowed either from thoughtlessness or from a greater feeling for the servant's convenience than regard for that which the servant is engaged to keep in order. The fumes of the stable principally consist of ammonia or of the volatile alkali. These emanations, from manure made pungent by the exclusion of atmospheric air, are very insidious in their effects, and are much more destructive than either of the fixed anti-acids, potash or soda.

Most coachmen are aware that the employment of soap, in any form, is injurious to paint and to varnish. Soap, however, is a salt, or consists of an alkali, which is neutralized or combined with a fatty acid. Still alkali, even in this shape, should not be applied to any conveyance. The idea of dissolving potash or soda in water, and then employing the liquid to cleanse the family carriage, appears to be so preposterous as to be rejected even by the ingenious ignorance of the stable. But a single application of the last agents would do less damage than the long exposure of a vehicle to the more penetrating fumes of gaseous ammonia.

Another subject of much importance to the carriage interest—but one not generally considered by the majority of proprietors—is the kind of water with which the stable is supplied. Coachmen commonly think to counteract the ill effects of bad water upon the horses, by exposing pails filled with the liquid, for some hours, within the tainted interior of the stable. But the fluid is more likely to become foul from the impurities which it can there absorb, than for the action of ammoniacal gas to amend the properties or to correct the evil qualities of the liquid.

Hard water, especially that which is impregnated with a solution of any mineral substance, is equally prejudicial to the health of animals and to the beauty of vehicles. Such should never be employed in any stable. Soft water or river water is alone suited for either purpose. Pipe water, or water which has traveled far in leaden tubes, is frequently impure; while pump or well water should always be avoided.

This may to many readers appear a trivial matter to be so energetically enforced; but as all the comforts of life are only secured by attention to those particulars which surround existence, certainly the pocket of the master is concerned in the conditions to which his carriage is exposed.

Many gentlemen, however, will permit the servants to ruin the best-made carriage, and then blame the builder, because his work is capable of being abused. When the family returns home at midnight, after the

necessities of the horses have been attended to, the vehicle should be thoroughly sluiced with cold water, so that not a speck of dirt remain clinging to the paint. At whatever hour the residence may be reached, this operation should never be neglected. The free and copious employment of fluid floated over the varnish is imperative, and (as will be explained hereafter) prevents serious damage.

There is no occasion, at so late a period, when extreme hours have probably indisposed the servants for exertion, that the carriage should be regularly cleansed with brush, mop, and pail; but a large watering-pot, kept ready for such uses, will, in a very brief space and without much trouble, pour forth a steady stream of liquid, and float off the loose fresh mud by the simple action of gravitation. This done, the superabundant moisture will have run off the varnish, which was first sluiced, and the surface may be roughly dried with a sponge. All being accomplished, the coachman may safely delay his regular routine of duties until he rises on the following morning.

The reason which necessitates a carriage to be immediately washed, whenever it returns home soiled, is quickly stated. If wet mud be permitted to continue and to dry upon the surface, a white, opaque spot will afterward indicate the place to which the dirt adhered. Moreover, a vehicle which is invariably left in its coat of filth until the following morning, always requires repainting and revarnishing twelve months, and very often two years, before the general period for restoration, when the opposite and the more careful measures are adopted.

Should a carriage have to wait the convenience of its master, it should never rest in the full blaze of the sunshine. Where a choice is possible, the careful servant always withdraws into the shade. It is even worth while that pride should so far sacrifice its feelings as to sanction such a precaution; for the cool shadow is not only more pleasant for the horses, but is infinitely better than the extreme of glare and heat for the conveyance to which the animals are harnessed.

The excess of light causes the varnish to crack, and removes the gloss from the smartest vehicle. The smooth and the highly polished surface suffers; this, of course, injures the deeper structures. Should the carriage have been purchased from an honest builder, there is small danger of any degree of warmth affecting the main structure; but if the custom of standing in the sunshine is sanctioned, the paint will not last longer than three years, while, even for that period, the effect will not be good; since the cracks in the varnish serve as gutters wherein soil will accumulate.

The well-built body of a regular carriage should remain together while three sets of wheels are used up. The arbitrary dictates of

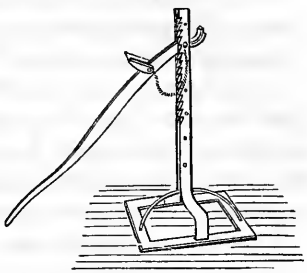
fashion, however, interfere with the economy which was, formerly, generally observed. Few, save the titled or the old aristocratic families, at present keep what once was the recognized build of every private carriage. The conveyances now manufactured for the moneyed and the respectable classes are built according to no common model; but the forms are moulded by the dictates of most arbitrary caprice. The article therefore which, when it was newly built, excited surprise and kindled emulation, shall, before it has existed eight years, provoke contempt, as a lumbering concern altogether behind the spirit of the age. Consequently, the duration being limited, (and a set of wheels being calculated, with ordinary work and care, to last four years,) not many of the lighter and more novel vehicles can be used for a longer period than suffices to wear two-thirds of the stated number.

A set of wheels hardly ever cost the same price, when made for vehicles of different descriptions. A brougham and a carriage both possess four wheels; yet the charges made for each kind are very opposite. The wheels proper for a carriage cost fourteen or twenty guineas; whereas those which are fittest for a brougham can be made for ten guineas. Then, again, the gig requires only two wheels; but the pair are generally sold at six guineas. These variations are regulated by the extent of the circumference, the substance necessitated, and by many particulars which the reader can readily imagine. Wheels are, therefore, somewhat expensive; a fresh supply is rendered the more costly, because the newness of one part makes imperative the renovation of the whole; although some persons avoid such a consequence by having the wheels and the body of a carriage of different colors. However, such piebald affairs always betray the intention, and the idea of exposing a personal meanness has, hitherto, prevented the practice from being generally adopted.

The good and the careful coachman can only display the value of his services when there is no stint of those appliances which are imperative for the proper exercise of his calling. It is always necessary that the master's economy should afford no ready excuse for neglect of duty in the servant. This is important, because no domestic, excepting the groom, has such valuable and such perishable property intrusted to his discretion. Paint and varnish are not enduring commodities. Most London houses are redecorated every third year; with all care, a carriage will appear respectable but one term longer.

For the proper discharge of his duties, the coachman requires three sponges and three leathers for the body of the vehicle. One sponge to cleanse the coarser dirt from the carriage; another to remove any lingering soil; while the third serves to render the surface somewhat dry,

previous to the employment of the leathers. For the wheels a setter, or a machine to raise them from the ground, cannot be dispensed with; a mop and a pail to remove the dirt; a brush to cleanse the angles; also sponges and leathers to thoroughly purify or polish the surface—all are needed. There should also be a superior brush for the lining; and another brush, with an additional leather, to brighten the brass or plated ornaments upon the exterior.



A WHEEL SETTER.

To polish the last, no preparation excels prepared chalk, when mixed with soap and water. It thoroughly removes every impurity, without sensible wear of the substance to which it is applied. In this last particular, it possesses an immense advantage over the gritty pastes sold for the purpose of polishing metals; for this material acts chemically and mechanically on such surfaces. The prepared chalk may, moreover, be purchased at every chemist's, the charge commonly being a shilling for the pound; while the other ingredients are found in every household.

In one respect, few servants are sufficiently careful. They imagine whitening and other filths are indispensable when glass is to be cleaned. The prejudice originates in ignorance; for glass requires nothing except two leathers, or a sponge and a leather, to render it perfectly bright. The first article should be merely moist, the intention being to loosen or to remove the superficial dirt. After this has been accomplished, the dry leather is brought into play to cleanse and to polish the metal. By such an easy and so simple a resort are prevented those accumulations round the edges of windows, and the soiled condition of the frames which disgrace too many carriages, and which certainly would generate no regret if rendered altogether impossible.

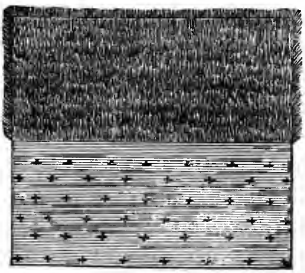
The lining does not need so much care as might be imagined. Unless the weather be hot and the roads very dusty, it will hardly require more than a single brushing. A brown holland cover for the interior has become general; but such a thing, when soiled, should never be sent to the family washerwoman. The article may come home washed, starched, and ironed to perfection; but in these processes it is sadly stretched and pulled out of shape. The holland never sets well afterward, and very speedily requires the cleansing to be repeated.

The proper method, and not the dearest in the end, is to return such things to the carriage-maker, by whom such matters are understood; the article will be returned cleansed and calendered, looking like new

material and with no part strained or stretched till it does not fit into its relative situation.

When speaking of cleaning, it may be as well to caution the reader against purchasing the requisites for cleaning his carriage of the nearest tradesman or at the cheapest shop. Such goods should all be of a superior description, or of a kind which is not encountered in the stock of most dealers. They cannot be purchased for a less sum than three pounds ten shillings, if the quality is to be excellent; and it is always better to commission the carriage builder to procure them than to risk obtaining worthless articles.

Most vehicles, whether mounted upon two or four wheels, are furnished with mats or small carpets, though the nature of these articles are better represented by such things being designated "rugs." These "rugs" are commonly of two sorts: one kind being known as "Brussels," the other being termed "pile." The last, of any figure, always strike the beholder as not having been specially made for the situation which the article occupies. The Brussels are not open to the same objection, having an ornamental center, surrounded by a complex border. However, the coachman should always carefully attend to the rug every morning; because, as the pavement has to be crossed every time the passenger leaves or enters the conveyance, that upon which the feet rest is more likely to be soiled than any other portion of the interior.



A PILE AND A BRUSSELS CARRIAGE CARPET PLACED TOGETHER.

Moist mud upon the surface of the rug should never be interfered with. The soil should invariably be permitted to become dry prior to its removal being attempted. Then the offending patch is more quickly displaced by rubbing the sides smartly together, or by passing a clean besom briskly but not heavily over the place, than by those numerous gentler measures which occupy more time in performance and are more wearing in their operation. All dirt being removed, no further brushing is required; but the rug, after having been beaten against any door post, (but that of the stable,) may be replaced in the carriage. All rugs should be similarly treated, and should be always removed every morning; because grit will necessarily accumulate upon the floor, and thus cause much more wear than can be occasioned by the feet alone.

As concerns those things which the wheels require, the coachman should observe three matters, which are all specially important: screw-

ing on the box or the central cover; oiling the axletrees; and perpetually noticing the wear which the tire, or the marginal rim of metal, undergoes. With regard to the box, that should be screwed until the wheel turns steadily, evenly, and pleasantly. Should sensible effort be requisite to put the wheel in motion, the necessity for force is proof positive that the box has been screwed too tightly, or that it has been made to press too hardly against the wheel, which it should merely help to retain in its position. Such a compression, acting upon all four of the wheels, will increase the draught threefold, the action being the same as a break when it is applied to check the perilous downward progress of any vehicle.

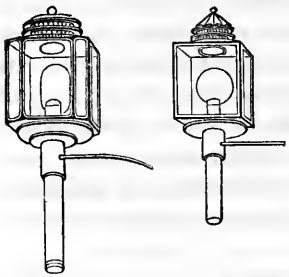
Inferior axle-trees soon wear with the friction of the wheels which rotate upon them. Colins's (expired patent) are, perhaps, the best; though the choice is somewhat extensive, and there is no article of this description which does not possess some merit. When the box will not screw steadily, and the case-hardening of the axle has worn off, the wheel is not, as many persons imagine, imminently dangerous; but its rotation becomes uneven, and the motion of the carriage is rendered less pleasant to the rider. The greasing or the oiling of the wheels, when the work is of the ordinary duration and character, is performed sufficiently often, if done once in three months. Quicker progression necessitates more constant attention; and the axles of a conveyance driven notoriously fast had better be inspected every week.

Coachmen are not commonly negligent concerning such particulars. Neglect, however, would cause the grease to assume a solid form, and impede the motion. This effect causes an extra drag upon the collars of the horses; and gentlemen, when the vehicle moves slowly, should, upon reaching home, see that the axles are properly greased, and the boxes are not screwed too hardly.

The tires will sometimes outlast the wheels; but all depends upon the distance covered, the weight drawn, and the pace at which the vehicle is driven. Some gentlemen—especially medical gentlemen in full practice—will wear through a set of tires in eight or nine months, when the orders given are to move fast, and four changes are required to get through the daily visits. However, no person should risk riding in a carriage when the tires become perceptibly thin or loose.

Small lamps are a mistake. Diminutive lanterns may in some eyes look prettier during daytime; but when they are used, the confined space does not allow the amount of oxygen to enter the interior which is required to support the flame. The consequences are, diminished brilliancy and an abundance of smoke. The glasses become speedily soiled and the reflectors deadened. A lamp of sufficient size is not without its

recommendations, as, even in daylight, it lends purpose and dignity to the vehicle which it adorns. At night it will nourish the flame, and cause the reflectors to shine forth with almost dazzling effulgence.



A LARGE AND A SMALL LAMP.

That it may do this, however, it is imperative the proper kind of candles be consumed. Of candles, there are two kinds sold for carriages. One, which is the cheaper, is a composition that soon softens under the combined effect of confined heat and strongly reflected flame. The light is not bad, but, nevertheless, is far from brilliant; while the want of an essential property makes the candle dear, even when purchased at a lower price. The other light is the old, stout, wax candle, which, if procured from a respectable dealer, will burn brightly, and scarcely be affected, with regard to firmness, after the longest night journey has terminated.

The carriage, when in the coach-house, should be covered and protected from soil by a large brown holland envelope. Under such a protection, it is usually placed with every door and window closed. The consequence is, that too many vehicles strike cold when entered, and communicate to the passenger a damp or musty smell. The interior is foul with imprisoned air; and custom conserves the moisture natural to confinement. The appendage suggestive of luxury is thus rendered a dangerous possession.

The brown holland covering will exclude the dust. Always, therefore, leave the windows wide open whenever the carriage is in the house. The atmosphere of such a locality should be warm and dry. It will sweeten the interior, within which four people may have been seated and breathing for upwards of an hour on the night before, when the rain fell in torrents. It will freshen up the padded linings, and the mistress will be grateful for the care which the coachman has bestowed upon her comfort.

The owners of carriages are not sufficiently careful when engaging the stable attendant. They often will, if there be a vehicle to look after, without hesitation hire a *groom* to perform the duty. When this is done, the gentleman infers that the man who can dress horses must necessarily comprehend everything that concerns the carriage to which horses are harnessed. Such an inference is certainly not warranted by fact. A good groom professes to understand only horses; and servants of this description are the coachmaker's aversion. It would assuredly

be better for many parties could proprietors condescend to exercise a little more caution in this particular; as a capable dependent alone ought to be created potentate over all the contents of the stable.

All that essentially concerns a carriage having now been stated, the subject, as the reader will have perceived, is not remarkably difficult to understand. A few questions, therefore, put to the candidate for a situation, would speedily elicit whether the applicant comprehended the duties of that office which he aspired to undertake. Ignorance can by its misdoing prove quite as harmful as the most designing malice. Much money and no little vexation would be spared could gentlemen practice a reasonable precaution before trusting in the discretion of a stranger.

It was formerly a rule among the trade to allow five per cent. every year off the employer's bill as a gratuity to the servant. This custom was general, not only with the carriage builder, but with all persons who had dealings with the stable. It even extended to those whose services were only occasionally retained, involving the veterinary surgeon, the shoeing smith, etc. The reason upon which such a habit was based being a desire to bribe the coachman, that he might damage what the trades-people would be required to repair; or, at all events, it was a fee commonly paid, hoping it would encourage the extravagance which it was the master's interest to restrain. "The *good old days*," however, are past! Most carriage builders have learned, from experience, their best interests are promoted not by the fragility, but by the enduring quality of those articles which they supply. Most proprietors also know how long a sound conveyance should endure, as well as what ought to be the average cost for repairs.

The more respectable houses, even now, certainly give trifling presents to the deserving domestics whom they encounter; but such presents are bestowed rather to induce care than to encourage willful damage of the manufacture, for the tear and wear of which the donor is responsible. In proof of this, the head of an establishment may frequently be seen walking about, restless with pleasurable emotions, when a vehicle which was built by his house shall last a month or two over the regular period for renewal; and the servant would therefore find he had embarked in a losing speculation, who should damage his master's property with the intent of increasing his occasional gratuity.

CHAPTER XVI.

SADDLERY, HARNESS, AND STABLE SUNDRIES—OF WHAT THESE CONSIST; THEIR APPLICATION AND THEIR PRESERVATION.

THE ensuing particulars were communicated by Mr. Thomas Sainsbury, Junr., the skillful foreman to a well-known and old-established firm—Messrs. Gibson & Co., of Coventry Street, Leicester Square. Proceeding from so trustworthy a source, the information cannot otherwise than merit implicit confidence; for when descanting on the above subject, the author, being anxious to state only facts, deemed it better to seek instructions from an established tradesman rather than to employ such knowledge as he himself possessed; since, not being acquainted with every branch of the business, his opinions must necessarily be more or less speculative, or based upon probabilities. Having enjoyed the benefit of Mr. Sainsbury's unreserved communications, the writer rejoices at the resolution which he had formed; and can only tender his sincerest thanks to Messrs. Gibson & Co. for the extreme liberality they have evinced throughout the transaction.

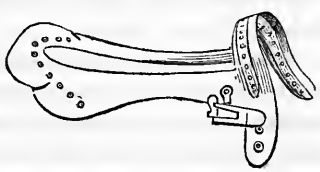
Saddlery and *harness making* are two distinct branches of one occupation. Saddlery strictly implies only that furniture which fits a steed for the uses of its rider. Harness making signifies the manufacture of those trappings which are employed upon animals of draught. There are, also, other subdivisions recognized by the trade; but on the present occasion these need not be particularly enlarged upon.

Many men are expert at either kind of manufacture; but the best workmen are those who devote themselves to one particular branch of the trade. Such can only find remunerative employment with the masters who can afford to keep an artisan constantly employed at the work in which he excels.

Saddlers justly complain that a horse cannot be accurately fitted when the animal is fresh from a dealer's stable. A good saddle should be so exquisitely adapted to the body on which it is placed as scarcely to be moved, even by the action of the limbs. A tradesman approaches perfection, therefore, in proportion as his trappings cleave to the trunk for

which they are manufactured. Such a desideratum necessitates that a precise measurement should be taken. Not only is length and breadth required, but the curves or shape of the body are also needed. The material employed by saddle-makers to ascertain such particulars is equally simple and effective. It consists merely of a narrow slip of pliable sheet-lead, about two feet long, and doubled in the center, like a pair of compasses. Such a material will preserve the outline of that body on which it may be compressed, and is sufficiently solid to retain any indentations made upon its substance; thus it possesses those attributes which to the saddler are essentials.

With such an article, the shape of the barrel, the sweep of the shoulders, and the hollow of the back can be accurately moulded, while even particulars can be ascertained; for lead demands little pressure to assume the figure of any substance over which it is bent, and will subsequently remain sufficiently fixed to permit of the lines, which have been modeled, being traced upon a sheet of paper. This process should always be observed; but when a saddle has to be made, it does not constitute the "be all and the end all" of the tradesman's duty. The tree, or the wooden base of the future article, should invariably be tried on the horse before the furnishing is proceeded with, because a saddle cannot possibly be perfect when the foundation of the structure shall prove defective, and any error is more easily corrected before the article be further complicated.



A SADDLE-TREE WITH THE SPRING STIRRUP BAR ATTACHED.

Nevertheless, it is obvious folly to have a saddle or a harness fitted to a quadruped while the body is loaded with fat, as the majority of horses are when fresh from the dealer's yard. At first no part should be accurately adjusted, but margin should be allowed for those subsequent alterations which are always imperative. After three or four months the dealer's "make up" usually subsides. Then each article will require to be overlooked, and may be amended to the animal's form, which probably will be preserved after it has been taken into regular work.

The choice of leather is of primary importance to the manufacturer of, and to the dealer in, equine furniture. After the goods are made up, no man, excepting he be a regular workman, can possibly form an opinion concerning the material of which it is composed. Certain tradesmen, not of questionable respectability, are in the habit of ticketing cheap articles to entrap chance customers. The dealers, however, do not always *know* the precise nature of the trash which they become the means of circulating. They, nevertheless, must guess its character, for it is bought

of the scamps who, shut out from all honest employment, exist by practicing upon the ignorant, or by pandering to the selfishness of the reckless portion of society.

The fellows purchase faulty leather. This, when made up, necessarily has the under surface concealed; it then requires a sharp and an educated eye to detect the nature of the fixed and highly polished material. The men, however, are fully aware that, with most gentlemen, stoutness is the test of quality. The prejudices of the general public are therefore propitiated, only the well-known shops being solicited by the peculiar order of workmen now under consideration. It is a common trick with the fraternity, before using, to line the flimsy stuff which they employ. This artifice is practiced as a bait to catch the notorious weakness of those persons in whose parsimony they find their most profitable customers.

Stoutness, however, may frequently deceive, even where excellence is really present. A good piece of leather is not always characterized by its bulk. The article which possesses the greatest strength may be thin, but it will feel supple and mellow to the hand. A skin of such a nature may confidently be trusted to wear. Persons, however, who are not educated to understand these qualities, would do well to avoid the showy harness which, in leading thoroughfares, is stuck prominently forward, and is very low in price. This generally fails when stress is put upon it. A fair proportion of all accidents reported spring from that cause, a common form of which is snapping of the reins when these are subjected to more than ordinary tension. Such things are either cut from unsound leather, or made of imperfectly manufactured material, or the furniture of the harness is designedly deficient in some most essential quality.

By the furniture of harness is strictly implied that portion which is of metal, and which is always added to the leather before the fabric is completed. The best metallic ornaments are a London product, and are always forged or cast, but never stamped. The best quality of iron alone should be used for such a purpose. Recently a very superior article has been adopted by the trade. This is made of the metallic combination known as German silver. That substance was, when first brought under public notice, far too brittle to be employed by the harness-maker; but late improvements have endowed it with a strength and a tenacity equal to that exhibited by the very best Swedish iron.

After the furniture has been shaped, it has to be plated. It is as a plated article that German silver is most valuable. The butler's pantry is characterized by greater delicacy than commonly distinguishes the stable, though, in both places, goods the same in kind may have to be operated upon. When the thin coating of silver is removed, of course

the substance upon which it is overlaid must be exposed. The duration of a modern ornament cannot be accurately stated; but when the chief body was of iron, the contrast presented by the coarser metal and the silvered surface rendered repeated renewals unavoidable: whereas the integrity of the superficial layer is not so important when the bulk, both in color and in aspect, is a fair imitation of the more precious investment. For this reason, Messrs. Gibson always recommend the use of plated German silver, which, if a trifle dearer to the purchaser, proves in the end the most economical, besides being a superior article from the commencement.

Buckles are of much use, as these allow the harness to be adjusted; but no buckles can adjust that which is not properly made. The tightening or loosening of a strap may improve the set; but a suit of well-constructed harness should be so accurately proportioned as to fall into its proper place without the aid of manual strength or the repeated alteration of the various fastenings. When harness does not fit, the collar either pains the shoulders or the saddle galls the back. An animal cannot progress steadily when its attention is engrossed by bodily suffering. The sight is no longer employed to guide the steps. The foot is incautiously placed upon a stone; the steed stumbles over the first inequality; or, the mind being excited by pain, any object may alarm or startle the quadruped. The animal is blamed, and has been destroyed because of such accidents; whereas the real cause of the mischief was a badly-made set of cheap harness, which was probably worn for the first occasion, and which the owner may have journeyed forth specially to display.

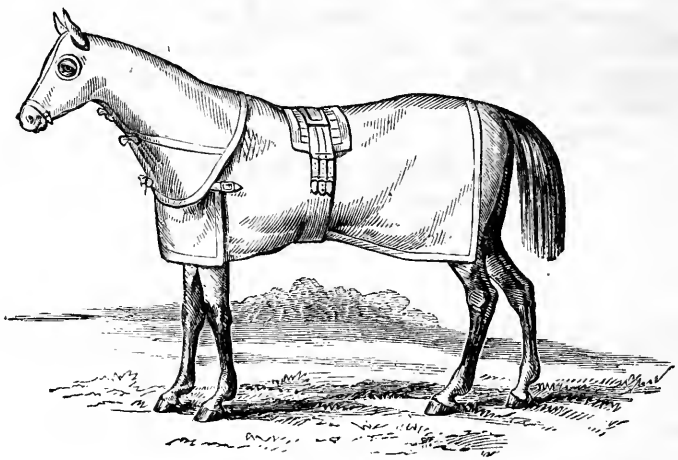
Such mishaps should caution the public always to have the trappings of a horse made for the quadruped; or, at all events, altered by a proper tradesman, before allowing them to be employed. The difference of cost between the ready-made article and the goods which are manufactured to order is not more than a third of the outlay; while the products of any respectable house will, upon an average, last twice as long as, and need infinitely less repairing than, the rubbish which is sold "cheap." Therefore, by true economy, by durability, and by safety, the public should be urged to a particular selection.

The gentleman, however, who contemplates "starting his horse," must not conceive the expenditure has terminated with the purchase of the animal. There are stables to rent and a groom to hire. Then there is the building to provide and to furnish; a saddle and a bridle to procure; with a set of harness and a vehicle to obtain. Rent and servant necessitate no immediate outlay. Hay, oats, and straw may possibly be acquired upon short credit; but stable furniture, saddlery, harness, and

vehicle should be paid for on delivery; otherwise more than a fair percentage for time and for money may be added to the account.

The articles requisite to furnish a stable are rather numerous; certainly they are somewhat expensive. Because of that circumstance, everything should be purchased of the stoutest kind and of the best quality. On no account should the servant receive extra wages to supply such necessaries. The man, when making such an agreement, of course contemplates a profit, and, as he concludes the bargain, calculates how few accessories he can contrive "to get along with." The smaller the number the greater must be the pecuniary gain. The horse is, therefore, inconvenienced, if not tortured, by certain processes being accomplished with inefficient instruments, the grooming being performed rather to please the master's eye than to conduce to the comfort of his animal.

The consequences of such an arrangement are, the gentleman is cheated, the horse is maltreated; while the only gainer by the transaction, should he be suddenly discharged, of course carries away the many et ceteras he has been paid to provide. The stable is in a great measure stripped of its furniture. The new-comer may not enter upon his situation immediately. A helper, who must in the interim be engaged, will not feel disposed to adopt any artifice for the convenience of his employer.



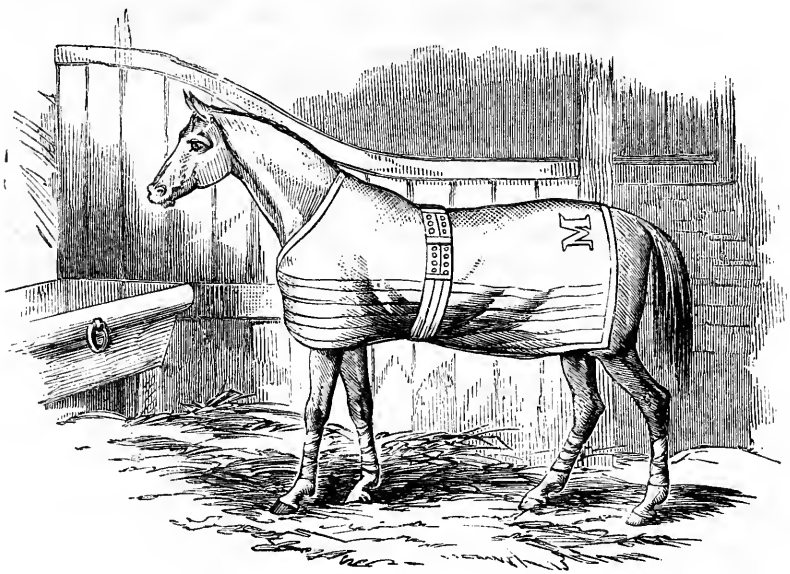
FULLY CLOTHED.

Moreover, the new servant may agree to certain conditions, without comprehending the outlay these involved. Grooms, when they enter upon a fresh situation, seldom possess cash in any abundance; therefore,

several expedients are imperative, each of which implies the imperfect performance of some necessary duty.

Supposing one horse only to be kept, stable furniture embraces—*clothing.* Of this, the first cost of the blanket kind certainly is the lowest; but the sort denominated "kersey" last much the longer period and therefore must, in the end, prove by far the least expensive. The animal's clothes consist of several pieces, each being known by a distinct name: as, quarter-sheet; breast-piece; hunting-piece; pad-cloth; hood; body-roller, and knee-caps.

To these are added a moderate sized and coarse blanket or horse rug for the night, as well as a night roller to fasten it upon the body.



NIGHT CLOTHING.

Among the stable furniture, which is more directly employed about the horse, ranks the head collar, the manger log, and the manger rein or the rope rein. Of which last, the leathern fastening is not much the dearer; while in appearance, in utility, and in wear, it will be found altogether the superior.

Of articles required by the groom for use, are the scraper; the hoof picker; the curry-comb; the dandy, or dandruff brushes and water brushes; combs; straight and crooked scissors for trimming the mane and tail; sponges; bandages for the legs; cloths; leathers; a rack chain; the pillar reins; the exercising bridle; hard and soft brushes for clean-

ing harness; a burnisher; a brush to clean the bit; an oil pan and a brush; a dung basket; pails and forks. All these articles, that they may survive the usual treatment of such things, should be supplied by some reputable tradesman.

SOME OF THE ARTICLES REQUISITE FOR THE GROOM'S USE.

The above goods, being designed to endure hard wear, should each be of the best possible quality. More order than is commonly observed ought to be maintained in the arrangement of the stable. A place should be allotted for every article when not in use. That this may be accomplished, stables should be built with better accommodations for storing than it is customary to provide in such erections. Bottles, jars, and implements are now thrust into any ready corner; the interiors of these places consequently present a littered appearance; but such an aspect is unavoidable, when there exists no receptacle where such articles might be placed until again required. There is now no help for the nuisance: forks, brooms, pails, and boxes must incumber the gangway, since the architect never provides a situation where such properties might be more safely lodged.

Another essential should be attended to by every gentleman who values the condition of his horse, the comfort of his stable, or the preservation of those accessories with which the last-named place must be stocked—this is, the temper of the servant. Some people favor a strange prejudice, which asserts irritability and industry are frequently associated. Anger, however, does not open the heart to sympathy, and its habitual display assuredly unfits its victim for the exercise of authority.

Evil passion will render a servant disobliging, and cause him to become an expensive retainer. The manner in which the failing will act

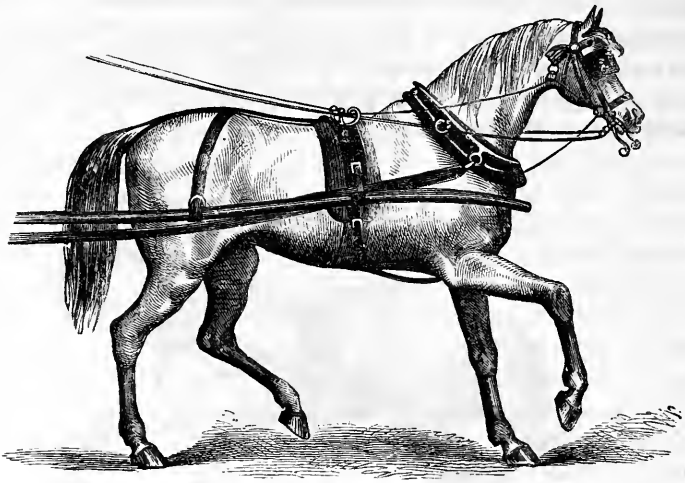
upon the groom may not be very apparent to the reader, therefore his indulgence is requested while the author proceeds briefly to explain the matter.

Nothing can possibly be more extravagant than passion. It is heedless of consequences, and destruction is its delight. The author formerly knew a gentleman who used to indulge in the most violent fits of unbridled temper. He made his home miserable, and a moderate income was sadly crippled by expenses resulting from gusts of constitutional irritability. The last consequence, it is melancholy to relate, alone induced thoughts of amendment. When this individual, in later life, became conscious that what he termed his cloudy mood threatened to darken his intellect, he would retire to some solitary apartment: there, he would station himself before a looking-glass, and begin simpering and blandly talking to his own image. He would then tear or break something, generally a wooden or a paper match, and, having thus gratified that which he named his destructive impulse, after a few more antics would return, all smiles, to the bosom of his family, exclaiming, "Thank Heaven! It's all over now!"

But the great majority of grooms, imbued with the pride of ignorance, cannot afford to acknowledge a failing. Conceit makes them rather lend strength to an affliction by striving to conceal its existence. The master may never discover, if he cares not to search for, the truth. But the servant is necessarily empowered with absolute control in the stable. The implements speedily are damaged; certain duties are either neglected or imperfectly performed; the horse loses its fat; the coat never looks well; the eye becomes restless from the natural timidity of the animal being perpetually awakened. Nothing promotes thrift in a quadruped like the placidity of its attendant; whereas the constant alarm excited by the habitual anger of its superior is inimical to that glossy outside and blooming aspect in which the larger number of horse owners so much delight.

The groom, in most situations, is greatly trusted with valuable property. In a large stable the cost of the trappings alone would form no inconsiderable possession to a needy man. There must be either saddlery or harness. There is no one to overlook the treatment of either. Such articles are expensive, and each is composed of numerous complications. Harness for one horse consists of a bridle, of a collar, of a pad, of a martingale, of reins, of traces, of a breeching or of a loin strap, of a crupper, etc.; all of which should be solidly and well constructed. The whole should be formed of the very best leather, for any defect in this furniture may be fruitful with the greatest danger. Hence the advantage of dealing with a maker whose warranty represents more than a wordy

inducement to purchase; and hence the necessity for care in the servant to whom such perishable property is intrusted.



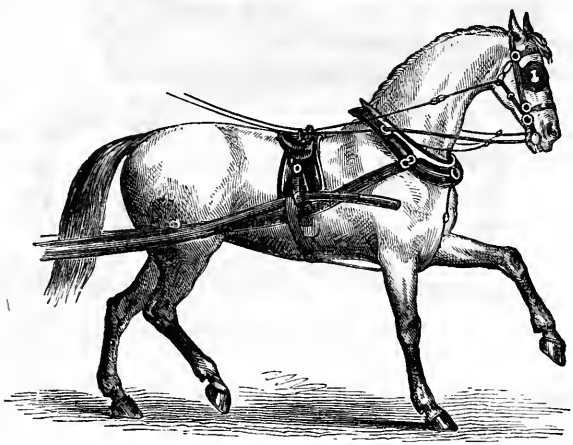
GIG HARNESS WITH KICKING-STRAP.

For the gig horse, a set of harness, if embellished with plated ornaments, is generally charged about thirteen pounds. For a pair of carriage animals, the harness possessing similar adornments will commonly cost nearly thirty-three pounds. If brass is preferred in the place of plated goods, a slight reduction is the result. Yet even the foregoing figures do not include crests and other fanciful items, which are invariably paid for as extras, since no estimate could possibly embrace articles concerning the size, the number, and the elaboration of which the tastes of scarcely two individuals perfectly agree.

The harness for a brougham is generally more expensive than that sold for the gig. Extra strength is required, and where work and leather are concerned, of course strength represents money. The trappings also should be more showy and more embellished when intended for a servant's use. Most gentlemen prefer the animal they control should be so caparisoned as to attract no attention. This feeling causes the difference in price. Ornamentation, where the horses are to be adorned, of course necessitates expenditure, though the degree in which the last quality shall be exhibited necessarily depends on the taste of the proprietor.

Carriage harness, however, is viewed as the perfection of its particular craft. It is astonishing how nice is the adjustment required, and how perceptible any fault or deficiency becomes to the least observant spec-

tator. The carriage may be new, the liveries of the smartest kind, but unless the harness be excellent, the general effect will be deteriorated The pace of the horses is rendered uneven, the coachman becomes nervous, and the vehicle is not drawn smoothly onward when any sensible defect exists. Gentlemen cannot imagine how much danger is hazarded by the endeavors often made to procure an expensive article at less than a fairly remunerative price.



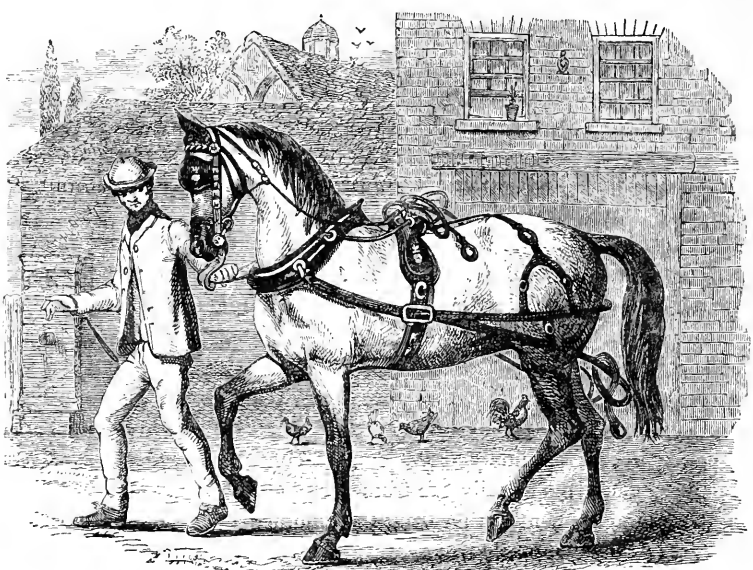
FULL SUIT OF BROUGHAM OR PHAETON HARNESS.

Harness is thus expensive because its uses demand excellence in every part. It is subject to daily trials; it must be manufactured to sustain perpetual tests as well as to endure constant supervision. A good set of harness should wear eight or ten years, although during the lengthened service repeated repairs must be expected. The mendings, or perhaps the partial renewals, will of course grow heavier as the age of the material increases. If done by piece-work, the repairs will average from one pound to four pounds yearly; but if a contract be entered into with the maker, the terms usually are from thirty shillings to two pounds per annum; the agreement dating from the commencement of the wear.

The endurance of such things, however, is greatly governed by the uses to which they are subjected, and by the manner in which they are treated. When harness is seldom at home, of course it wears faster than when it is rarely or is moderately employed. The industry and habits of the person who looks after the articles have also to be considered. Some lazy men will ruthlessly wash the leather in a pail of water and afterward hang it upon the most convenient paling to dry in the sun shine. Such a proceeding will prove quickly ruinous: harshness is in

duced; all suppleness is destroyed; a disposition to crack is engendered; while the plated ornaments speedily become tarnished.

The proper method of cleaning is, to employ as little water as possible. A moist sponge, well soaped, may, when very much soil exists, be quickly passed over the surface, but each part should, without loss of time, be immediately dried after the dirt is removed. All the mud having been thus obliterated, the several pieces should be most carefully gone over again with a dry cloth, so as to absorb any possible moisture which, during the first cleansing, may have escaped notice. In fine or during dusty weather, no fluid is necessary, nor should the employment of any be suffered. A pail of water will, doubtlessly, save labor; but the servant's leisure, which is thereby secured, is a severe burden upon the master's income. A good brush, not too hard, but one having springy hair, will soon remove all dry impurities; and with that the harness, when not made moist by the road or rendered wet by exudation from the animal's body, should always be cleansed.



A FULL SUIT OF CARRIAGE HARNESS.

This being done, apply Harris's jet-black oil, but not thickly; enough has been laid on so that the application lies upon every portion of the surface. No long time need be allowed for the oil to dry in; but the first piece is generally ready to receive the next application by the time

the last part has been properly finished. Then apply a little of the compo., which being polished to a lustrous black, the entire process is perfected by a final wash of Harris's harness fluid.

The appearance will be longer preserved when harness is cleaned after the foregoing directions, while its lasting properties are not injured by the process. Instead of being deteriorated every time it is cleansed, the leather is nourished, its strength and its aspect being renovated. The plated ornaments, of course, are not alluded to in the above instructions; to polish these, some prepared chalk, fine brushes, finer than are generally employed, and a wash leather are imperative.

An inefficient groom is, perhaps, more readily detected by his manner of cleaning harness than by any other stable operation. Practice alone confers aptitude in handling the various pieces. Use enables the different articles to be rendered smart without staining the flesh or soiling the dress of the operator. When the servant is new to the occupation, particular portions are invariably scamped; others get more than the requisite attention. Certain of the ornaments are left with the crevices full of powder, while some parts are wholly neglected; but, above all, the linings to the various pieces are always smeared and impressed with dirty finger-marks. A good groom apparently will not trouble himself to avoid such errors, but, when he has finished, each portion is equally clean, while the insides are untainted and free from the smallest soil.

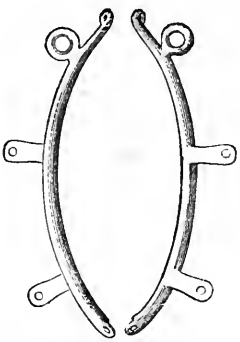
The linings should be cleansed in the same manner as the other parts, only the blacking and the polishing are unnecessary. In most situations, leather is employed to cover the under surface; where this substance is present, no beating is then required. Where cloth is used, as in the lining of a saddle pannel, this should be daily beaten with a small cane, and subsequently brushed till all hairs and dust are removed. The bad servant invariably strives to hide his laziness under a pretense of excessive zeal for his master's interest. When ordered to attend to the lining of his harness, he will endeavor to escape from the command by pleading the wear which attends the constant friction occasioned by continual beating and by perpetual brushing.

A collar placed on the horse should be firm, falling easily into its proper situation. It is stuffed with straw or flock, and is lined with leather. That the lining may not be stretched and that the stuffing may not be hardened in parts but may feel equally firm upon every portion of its inner surface, the article should never be used when moist, even in the remotest degree. When removed in a wet state, it should be dried either in the sun or before the kitchen fire, prior to again being taken into service. When doing this, of course the nature of the material should be considered; it should only be exposed to such a heat as will

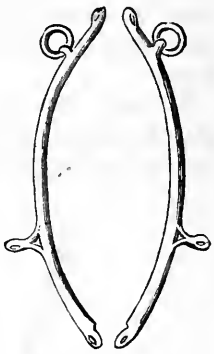
cause the moisture to evaporate, and if that end can be attained by a brisk current of air in a shady place, such a situation is to be very much preferred to any natural or to any artificial warmth.

The collar should pass into its situation without requiring the force which careless grooms seem to delight in exerting, or ignorant servants, possibly, may regard as necessary to the proper fulfillment of their duties. Any violence, when daily repeated, must eventually damage the horse's appearance by removing hair from the prominences of the head, and by causing the naturally placid countenance of the animal to assume a worn or a ragged expression. The collar should be turned when put over the face, the widest part of the opening being passed over the ears. When the head is through, and before the article proceeds lower than the topmost portion of the neck, it should be righted, or the pointed part should occupy the most elevated situation; after which it is slid down upon the shoulder.

The collar, when fitted to the neck, should sit firmly and closely. The bearing should be equal and even, because the entire draught is from the collar; in proportion as the bearing is accurately distributed, so the weight will be easily propelled. Some people have endeavored to render the collar more steady by attaching the traces to hames with double eyes. The hames are the metal rods which repose upon the



HAMES WITH DOUBLE EYES.

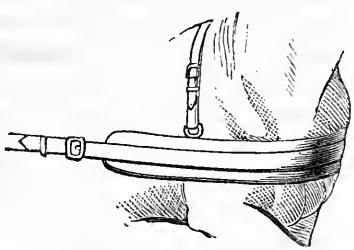


A SCROLL-EYED HAME.

collar; the eyes are circular spaces which permit the traces to be united to the hames. Though double fastenings may occasion the force to seem better distributed along these rods, the effect must operate rather upon the spectator's mind than upon the substance it is meant to render stationary. If a line is drawn from the point where the trace should end, and equidistant from those places to which the two bands are

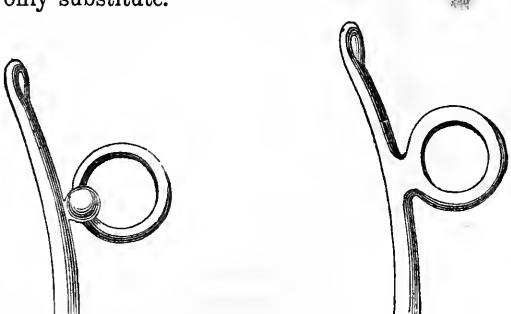
attached, the real seat of bearing will prove not to have been changed by the angularity of the fastenings, but will either remain confined to its original situation, or it may act only on one fastening to the exclusion of the other. That which is known as a scroll eye, however, is more elegant than the plain attachment, and on account of its smartness deserves to be preferred.

A breast-collar, when the circumstances permit a free exercise of selection, should never be adopted. It may, in the eye of inexperience, look prettier; but it goes directly across a part of motion; it drags against the muscles, which, being loose in structure, are not made to endure continual pressure. Moreover, the cartilage of the chest moves with each respiration; any force operating from without, therefore, cannot but oppose this normal action. Besides, the chief component of the chest, the terminations of the ribs, which are inserted into the sternum, are also cartilaginous. Now, cartilage is highly plastic, and readily assumes strange shapes, as is seen by the larynx when distorted by the bearing-rein. (See "Illustrated Horse Doctor," pp. 108, 109.) Whereas, when the collar bears against the shoulder, it is supported by solid bone, as firm and as compact as can be found in most structures throughout the body.



A BREAST-COLLAR OR STRAP

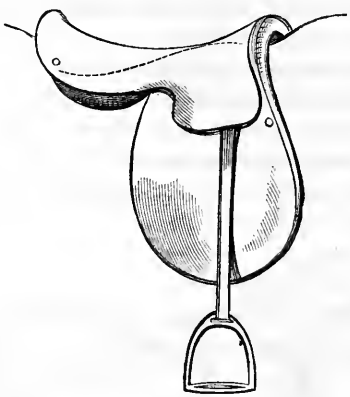
However, when accident or disease makes it impossible to continue the employment of a collar, the breast-strap, although in itself an evil, becomes the only substitute.



A MOVABLE AND A FIXED RING FOR THE REINS TO PASS THROUGH.

There is connected with the hame a simple arrangement, about which neither gentlemen nor makers are always sufficiently particular. The

reins are supported in their proper position by passing through a ring or ferret, which is generally fixed upon the hames. Should the horse, thus caparisoned, accidentally fall, the loop, being immovable, is either bent out of all shape, or, more probably, it is broken short off by the weight of the prostrate animal. It may be replied, that horse collars are not, when manufactured, made to be violently driven against stones. The writer does not contradict the assertion; but when a hinge will not interfere with the aspect, and, by yielding to pressure, will guard against a possible mischance, the little extra labor which the addition would require assuredly could not be better expended.



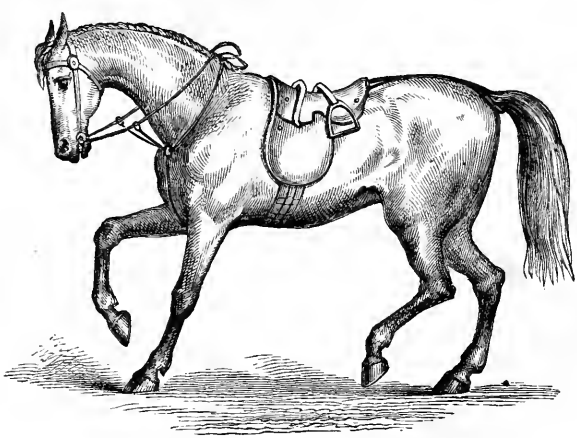
A SADDLE.

The principal portions of the harness having been considered, some thought must now be bestowed upon the chief essentials of saddlery. A good saddle, intended to please the majority of horsemen, should be seventeen and a half or eighteen inches long, the length being regulated by the shape of the animal. It is, of course, equally easy to manufacture a saddle of any given proportions; but one of a sound working and a thoroughly useful sort should not be much shorter, and should weigh from ten to twelve pounds. Such things have been produced of seven pounds weight. Were it desirable, the saddle could be made much lighter even than the last figure represents; the article at present under consideration is supposed to be of a lasting description, and not of the fanciful kind. When gentlemen lay down rules which the manufacturer is to observe, they should remember that the tradesman, who merely carries out his employer's ideas, and is not permitted to obey his own convictions, is no longer responsible for results.

A broad seat is generally preferred. This should not be so wide as

to disable the grip of the rider; but it ought to be of no greater dimensions than will allow a firm hold to be taken by the fleshy part of the thigh. Every saddle has two girths, but all girths have not three straps. These should always be present; because if one strap should break, another is ready to supply its place. It vexes most keen sportsmen, near the termination of a hard run, to lose a good place because, strained by the accelerated action of the horse's lungs, a girth strap shall, when excitement is at its height, give way.

To avoid so irritating an accident, the hunting or the Melton girth is now commonly employed. This consists of a broad webbing, which is tightened by two straps, one at either margin. Over the main girth there runs a narrower length of the same material, which is kept in its situation by passing through two loops upon the principal binder. The narrower webbing is fastened by means of the third or central strap. Thus, should one of the fastenings of the chief girth yield, or even should both be forced from their holds, the saddle will not necessarily be displaced, as there is always a supernumerary guard in attendance ready to officiate as the representative of its incapacitated principals.

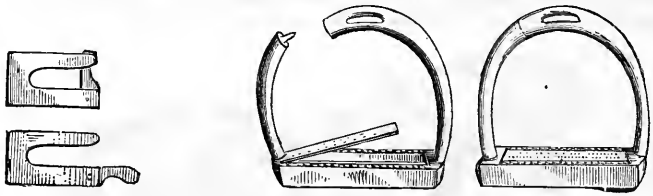


CRUPPER, MELTON GIRTH, AND MARTINGALE.

Cruppers are generally discarded. These appendages have occasioned terrible sores, and are of no actual utility to the retention of the saddle; for the withers should prevent that convenience from moving too forward. A martingale is occasionally used; but if the animal be rightly formed for its purposes, and has been carefully broken in, the head should be carried properly without necessitating compulsion. The mouth is soon injured and loses its sensitiveness when a tight rein is constantly

in requisition to bring the muzzle into its proper situation. When the lips are subjected to perpetual pressure it can hardly be anticipated that the steed can obey the slightest movement of the rider's hand. Most people are vexed when obliged to tug and haul every time it is desired the animal should deviate from the direct course.

Once the spring stirrup was hailed as a marvelous invention and an indispensable part of every good saddle. This was designed to release the foot of a rider who had lost his seat. Such things were very pretty toys. They acted beautifully in the chamber when first taken out of paper, but, when exposed to use, these elegant precautions soon got out of order. Dirt would work into the joint and would interfere with the mechanism, which thus became useless at the very time its services were likely to be required. After a hard gallop the joint could not be otherwise than clogged, especially when the run was across country. Therefore the spring stirrup has been displaced in public estimation by the spring bar. This last is the newer and the less costly provision, the spring being attached to the bar which supports the stirrup leather.



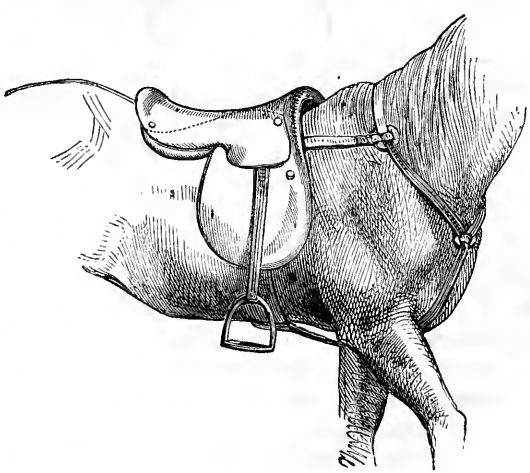
SPRING BAR FOR THE STIRRUP LEATHER AND SPRING STIRRUP. BOTH BEING EXHIBITED DURING REST AND WHEN IN ACTION.

The situation where the machinery is lodged protects it from dirt, from wet, or from dust, being doubly sheltered from all such intrusion. It is covered by the skirt of the saddle, and is likewise shielded by the thigh of the rider. The article thus placed is removed from the operation of that objection which has thrown the spring stirrup into disuse. The purpose of both inventions is equal, being exactly similar. When the rider was unseated, the stirrup was *intended* to yield before the drag of the imprisoned foot. When the horseman is thrown, the smallest traction *does* occasion the spring bar to act, and the leather is released, the limb forcing the stirrup iron and the leather to quit their relative situations.

The stirrup iron was formerly made of various shapes, each of which was imagined to possess some special advantage. At present, however, the public appear to disregard peculiarities of form in such articles, and to pay no attention to those contortions concerning which our forefathers were so extremely precise. It is now considered quite sufficient if the

stirrup iron afford a firm rest to the foot of the rider, if it be not disposed to glide away from the pressure of the boot, and if it be as light as possible, but nevertheless possesses the strength necessary for its purposes. All these intentions are embodied in a plain, three-barred stirrup iron, which presents an ample surface of bearing, while, being slightly roughened upon its upper surface, it is readily retained by pressure; but for the strength of the article the respectability of the salesman must afford the only possible guarantee.

Also appended to the saddle is an adjunct frequently of no inconsiderable utility in the field. It is comparatively of modern invention, and is known as the hunting breast-plate. One extremity is attached by means of a hold to each side of the saddle, near to the pommel. The straps proceeding thence are short, and soon unite, when the medium of junction proceeds to the chest. The two leathers, one from either side, are there joined to a single strap, which, after passing between the forelegs, is finally attached to the girth. The intention of this addition is to retain the saddle in its proper situation, an object not always easy to accomplish even with this provision, as high withers and violent muscular exertion naturally incline to its backward movement.



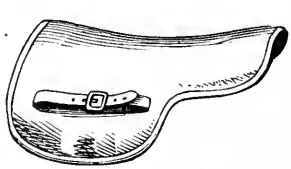
A HUNTING BREAST-PLATE.

The breast-plate, for the full development of its use, necessitates much care in the groom when caparisoning the quadruped. The two short upper straps, on which all stress must center, join directly under the windpipe. Because of this all parts necessitate the most accurate adjustment; where a breast-plate is used, the servant should particularly notice

the position of the girth when securing the fastening. If the leather should be loose or even slack, the backward motion of the saddle will of course dispose the two side pieces to assume the straight line, or it will force their junction upward as well as render its pressure more stringent. The consequence will be, the strap must press upon the trachea and blood-vessels; the animal may be choked, and the hunting of one day spoiled, even should the rider and his horse ultimately escape all injury.

The upper reins of the martingale are sometimes made to spring from the center fastening of the breast-plate. But the use of the martingale is to force the head downward. To do this requires a firm hand and a straight rein, which consequently pulls the restraining strap of the breast-plate upward, and thus destroys the purpose of the last invention. The two articles are, in their uses, perfectly distinct; such things cannot be profitably blended. The martingale is designed to counteract an upward traction. The fastening of the breast-plate should drag only in the downward line, whereas the head strains in the contrary direction. When a martingale cannot be dispensed with, one should be worn totally distinct and separate from the breast-plate. It is, however, always desirable to join the meet with as few floating gear as possible; since, when the pace grows hot and the fences are high, such loops are little better than baits for accident.

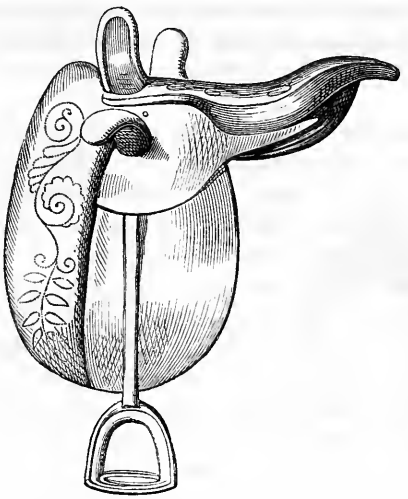
A good addition to the saddle, and one no rider should be without, was introduced into this country by Messrs. Gibson. It was originally used in India, where its utility was largely tested, and amply proved by the British cavalry. This improvement consists of a felt under-pannel; which is made of such dimensions as to be perfectly concealed when lying between the pannel and the skin. As an adjusting medium it answers admirably. Should the saddle not exactly fit, the motion chafes the felt, and does not gall the body. Besides, horses are not, more than their masters, of the same size at all times; the felt, being elastic, allows of slight variations in bulk without imperiling the safety of the proprietor.



FELT UNDER-PANNEL.

The felt under-pannel should always be used whenever a side-saddle is employed; it renders the adjustment more easy, and makes it more secure. Such an advantage cannot always be attained, even with the extra girth, with which all side-saddles should be provided. Every possible care ought to be exercised that the seat of a lady's saddle may be rendered firm; because, as the make throws the bearing upon the

near side, and the fixedness of the position must incapacitate the lady for freedom of action, therefore any movement of the saddle is likely to be attended by serious consequences.



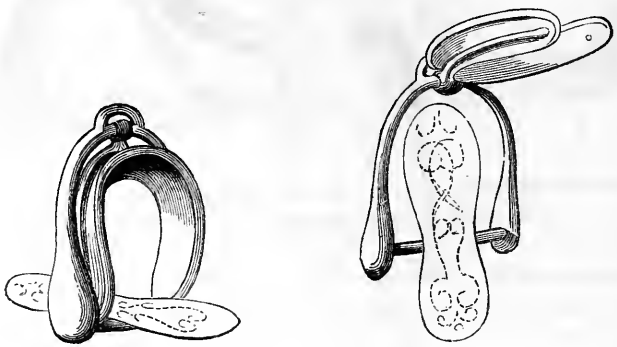
A LADY'S STIRRUP WITH THE KNEE CRUTCH AND THE VICTORIA STIRRUP.

For the foregoing reasons, the maker should bestow the greatest attention upon the shape of the saddle-tree; no artifice should be neglected that is calculated to render the side-saddle more fixed upon the horse's back. The seat should be longer as well as broader than is usual in those articles which are manufactured to sell quickly and to look prettily. It should be covered with soft, unpolished leather, and be quilted, so that its partial roughness and trivial inequalities may present a more secure and an easier seat for the fair equestrian.

Every aid would, however, be useless, were it not for the crutches. The female rider must cast her bearing upon the near crutch; hence horses, when forced to work under an ill-made side-saddle, often suffer terribly, and exhibit as the consequence severe examples of fistulous withers. Experience has proved that the off crutch is of small service, save as it may confirm the confidence of the lady; although, by rendering the leg more stationary, it is in reality calculated to increase her danger. Its utility lies in calming the timidity of the horsewoman; for the instant a horse gets into motion, the bearing is entirely toward the near side; therefore most modern saddlers, although they dare not remove the useless crutch, have its height materially diminished.

The third or knee crutch is a comparatively recent improvement. It

offers a point for pressure to the left knee, or of bearing for the stirrup leg. It is of every service, enabling the lady to retain a firm seat. During the perils of leaping it prevents the lighter weight of the female body being, by the violence of the motion, so shaken as to lose all hold upon the upper crutches. Thus, in some degree, it compensates for the advantage that gentlemen enjoy in the grip which their position enables them to take of the saddle.



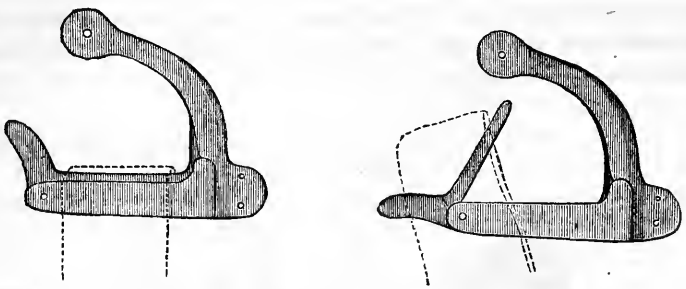
THE LADIES' PATENT STIRRUP. EXHIBITED AT REST AND IN ACTION.

The slipper was the favorite stirrup in use with the side-saddle a few years ago. Its adoption then was all but universal, and so at the present time is its rejection. The Victoria stirrup, or an iron of the shape which is adopted by Her Majesty, now engrosses public patronage; it being generally employed, with the addition of the previously noticed spring bar.

The patent stirrup for ladies is not liable to those objections which were urged against the spring stirrup, when employed for the saddles of gentlemen. The habit protects the machinery, which is not therefore exposed to the intrusion of mud. Its action is almost certain; but, should it not answer the occasion, the next invention, when employed with the foregoing provision, would probably set the malice of "luck" at defiance.

The following should also be appended to every lady's saddle. Male equestrians may esteem the spring bar to afford the gentle sex sufficient protection. However, where there is a possibility of question, no expense ought to prevent the more fearful rider from being guarded by the latest additions, which may promise even the remotest chance of security. The common spring bar rarely fails to act; but, on particular occasions, it has retained the stirrup leather. The patented improvement shown on the next page appears to provide against such an accident, and when

employed with the stirrup represented in the previous engraving, it assuredly affords an almost certain immunity from those accidents which each is assumed to render an impossibility.



PATENT SAFETY SPRING PRESSURE STIRRUP BAR. DEPICTED AT REST AND IN ACTION.

The dotted lines indicate the relative positions of the stirrup leather.

No lady's saddle should be used without being accompanied by the hunting breast-plate; for nothing which might possibly increase security should in that case be neglected. For the last reason, also, a felt underpannel should never be absent; because firmness of seat lends assurance to the rider, and because the provision prevents that unsteadiness which is known to provoke one of the worst evils to which the horse is exposed.

Saddles are covered by what the public denominate pigs' skins, but which the trade, aiming at a distinction without being able to indicate a difference, persist in calling hogs' skins.

These are always procured from the currier in large lots when purchased at first hand; but they are a hazardous article to buy. Out of two hundred, of which a parcel shall consist, there may not be more than two dozen really sound skins; therefore no tradesman has hitherto been able to establish a reputation for dealing in so uncertain a commodity. The wholesale merchant, consequently, knows but few customers Established houses alone can afford the requisite outlay to obtain goods of so notoriously uncertain a character. From the larger parcels the best specimens are carefully selected by the first buyer; the remainder are cast upon the retail market, and are distributed among the numerous class of trades-people, whose limited capital does not allow them to speculate with the articles which they employ.

A good saddle is recognized by the accuracy of the fit. When let fall upon the back, it at once finds the proper situation. There it remains stationary and firm before a girth is fastened. When the maker, having brought home a new article, finds occasion to interfere with the groom,

shifts about the saddle, and concludes his performance by tugging at the girths before he requests the employer to feel how firmly the new production is located, it is always an evil omen. The saddler, supposing the groom to be competent to his position, should never be suffered to volunteer assistance; the horse owner had better ride bare-backed than be seated on a badly-constructed saddle, for the last is hardly less unpleasant to a good horseman, while the first is infinitely more safe for the rider and the quadruped.

A good fit presupposes excellent workmen, and of course the larger houses attract the greater number of such artificers, because in such shops men expect to be employed on that particular branch of work in which each excels. Such masters, likewise, can afford to pay the highest rate of wages, and can alone tempt with constant employment. Add to these reasons that money in the saddlery and harness trades commands rather more than its just influence, being able to select the pick of every market, and it must be apparent how many advantages the established firm enjoys over the ordinary beginner, who has to struggle against the lack of pecuniary ability, against a want of regular customers, and against those difficulties which are peculiar to his calling.

Hogs' skins are easily cleansed by washing quickly with a little soap and water; but washing and drenching are not here regarded as representing the same process. Water is not beneficial to leather of any sort, therefore as little fluid as will accomplish the object should be used; the more speedy the operation the better. It should be concluded by a clean cloth immediately wiping the surface quite dry. This finished, a sponge damped with good milk should be passed over the exterior; the saddle then should be hung up (not before the fire or in the sunshine) to expel the moisture. The more seldom, however, this process is adopted the better; consequently, it is only to be recommended upon urgent necessity.

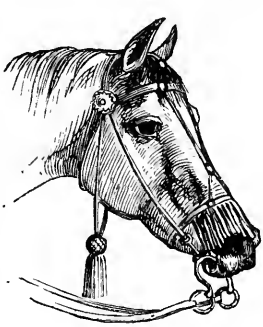
Bridles, and every strip of harness which bears the slightest resemblance to a rein, should be cut only from the best, the strongest, and the choicest of English leather. Struggling tradesmen do not all possess the ability, however powerful may be the desire, to exercise selection in this article. Some have sent forth reins made of so faulty a material as stood exposed the moment it encountered the glance of a practical or an educated eye. The head-piece, requiring shorter straps, may possibly be cut from a partially imperfect hide; but for the reins, length and toughness are essential. The merest crack will, with constant wear, become a fissure; and no horseman can foretell the moment when personal safety shall depend upon the power which he shall be able to exert through the reins.

A fair proportion of the injuries which happen to riders or to drivers

are aggravated by faulty reins. A contest arises between a restive horse and an intemperate master. The contest, which from the earliest period alarmed timidity in the animal, has just excited the man, when the reins fly asunder. The scared quadruped finds itself suddenly released. The creature understands nothing of the cause; but the first impulse natural to fear is to fly from the presence of the power against which it has been struggling. Whenever the horse displeases its master, pain inflicted by whip, bit, or spur generally ensues as a natural consequence. It is from such torture that the poor life endeavors to escape. Motion increases its terror as the unshackled being dashes blindly onward. An accident is the probable result. The coroner and the jury assemble; a verdict, which all approve, is formally delivered; but no one thinks of inspecting the reins to discover the real cause of injury.

Reins should always be attentively examined. If good, they look pleasant to the eye, and are yielding to the touch. Any roughness, harshness, or hardness denotes the presence of defective leather. It may not break to-morrow or the next day, but before long the rein will separate. The slightest indication of a crack will gradually become an extensive division. Messrs. Gibson have often been honored with commands to export reins, the foreign leather being harsh and inelastic, therefore feeling unpleasant to English hands; but more frequently the natives of this country are afraid to employ reins exhibiting innumerable cracks, everywhere displaying the roughness which should not exist, and being totally deficient in the suppleness which ought to be abundantly present.

When reins are intended for the use of ladies, their character should be unexceptionable. Many girls, before they have conquered the seat, depend, in no slight degree, upon the reins for retaining their positions in the saddle. They of course understand nothing about saddlery. They accept anything which is offered; but the sudden snapping of the reins always terrifies the steed, while it greatly alarms the gentle being on its back, whose fears are increased by finding herself instantaneously deprived of a support on which her inexperience had depended. Ladies' reins, being made lighter, should be cut from better leather than those intended for gentlemen; if there be a possible choice, it should be accorded to the weaker party. Some horsewomen like the reins and the head-piece to be formed of rounded straps. Thus made, they cer-

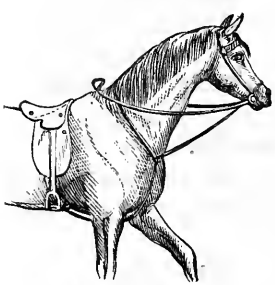


A LADY'S BRIDLE.

tainly have a lighter and a more graceful appearance; but Messrs. Gibson do not recommend such a form of bridle to those ladies who delight in mounting and in subduing high-spirited animals.

Martingales are generally complained of as troublesome appendages when added to the trappings of either the saddle or of the gig horse. These articles, however, can be so manufactured as to lend a dignity to the quadrupeds which run before carriages; though, where a martingale is used, the bearing-rein becomes unnecessary, since both restraints aim at the same object. Perhaps of the two, the martingale is the better, because, while obliging the head to be held in the proper position, it enables the coachman, by slackening the reins, to rest the muscles of the neck when the vehicle pauses. The martingale certainly requires the better driver, and imposes the greater exertion upon him who drives, the latter circumstance being likely to interfere with the digestive serenity of most servants.

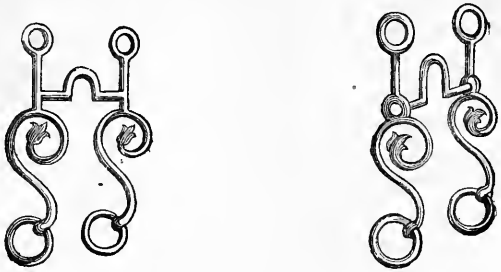
There is, however, one species of martingale, without which few ladies' saddles appear to be fully equipped. Some animals necessitate no restraint to improve the carriage of the head, but these, nevertheless, acquire a habit of throwing the muzzle suddenly up and of jerking the foam from the lips into the face of the rider. This propensity communicates no pleasure to the person who occupies the seat. It generally causes the equestrian to lower the head whenever the quadruped evinces a disposition to exalt its countenance; such being the precise moment when the human vision is of double value; for the eye of the horse, being direct heavenward, can then take no cognizance of earthly objects; hence the great need for the guidance of the rider.



A FRENCH MARTINGALE.

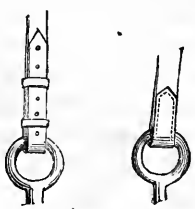
To correct this, the French martingale, which consists of a single strap, is attached to the nose band. The band passes over the nasal bones, and under the forward part of the lower jaw. To the lowest part of this band the French martingale is fixed. The operation is obvious. The horse, by raising the head, causes the martingale to act on the bridle: the nostrils are compressed; the breathing is interfered with; and, as the quadruped resents the slightest hinderance to its respiration, the fruitless effort to indulge an obnoxious habit is relinquished, so that the annoyance of the tightened nose band may be avoided. French martingales, which were once largely in use, are now never employed with a

gentleman's saddle, although they have not been discarded by equestrians of the gentler sex.



BITS USUALLY ATTACHED TO LADIES' BRIDLES.

The bits which accompany the ladies' bridle are more fanciful in shape, and more ornamental in appearance, though hardly so heavy as the articles manufactured for the use of gentlemen, because the generality of ladies seldom resort to this instrument of positive torture: indeed, these severities seem to be losing their attractions over the harsher natures. Many men, however, employ them; most regard a bridle as incomplete without a bit; but very few are so fond of the restraint as to order it to be sewn to the head piece.



BUCKLED AND SEWN ON.

A bit permanently attached certainly appears lighter, and necessitates the employment of less obvious force, though at the same time it must be more acute when in operation. Nevertheless, it is to be doubted whether one foot passenger out of ten thousand would notice the only peculiarity for which such an arrangement is to be commended. Moreover, every animal does not require the exertion of extraordinary power; while the irremovable character of the bit is not without attendant disadvantages. The article can no longer be changed at pleasure. A rider may grow to dislike the constant employment of one form of coercion. The animal's education may not need the perpetuation of such severity; the temper may improve, or the steed may accommodate itself to the personal peculiarities of its proprietor; or the quadruped's mood may change, for horses, like their masters, are swayed by strange influences, and are sometimes impelled by eccentric impulses.

When the metal has to be washed, cleaned, and polished, should the bit be sewn to the head piece, the leather cannot be removed during the processes. Water is not beneficial to a leathern material; therefore the bit must either be imperfectly renovated, or the head piece must be

soiled during the requisite labor demanded for the purification of its adjunct. These annoyances are avoided when the bit is made to take on and off by the means of a buckle. Each part can then be properly attended to without hazard to the rest. Should the bridle not appear clean, the owner recognizes a legitimate cause for complaint; but when the bit is fixed, the groom has always ready an excuse for idleness, while the consequent wear will be found altogether more rapid.

There are various kinds of bits, and each has its admirers; but a well-broken and a good-tempered animal requires nothing more powerful than a snaffle. Restraints of needless severity, employed with extravagant exertion, are by no means required, though such are far too general with the great majority of professed horsemen. The animal is spoilt by such tuition. It is educated to understand nothing but coercion; whereas gentleness and firmness combined can accomplish much more than brutality can compel.

There is a well-known tale, which, being illustrative of this subject, may here be aptly quoted. A farmer, intending to break a colt for sale, mounted the animal; but hardly was he in the saddle before the ears were laid upon the neck, and the frame rendered rigid by the presence of obstinacy. The intention of the attitude was recognized by all; but offers of stick, whip, or spur were as stubbornly rejected. "No, no, no," replied the kind-hearted proprietor to the proposal of such favorite persuaders. "Jane, lass! bring I the afternoon's mug and pipe." These were discussed. Another pipe was filled and exhausted, without the honest fellow descending to earth. Then the colt was invited to proceed; but the humor of the quadruped continued unaltered; accordingly it remained stationary, with the master on its back.

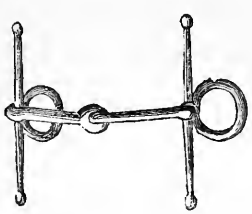
"Father! tea is quite ready," cried Jane, peering from the kitchen window. "Bring it here, lass, for I shan't get down!" was the response. The tea was brought and partaken of. The day was drawing toward its close, and the air was becoming cold. "I should not mind having my great-coat, a pipe, and a glass," shouted the farmer. Everything was brought, and the man endeavored to make his position comfortable; but apparently took no heed of the creature beneath him. "For," he observed, "if I could strike, the colt could fling and prance; so it might not be certain which would master; whereas, while I be quiet, I've the best on't."

Supper was eaten where the tea had been swallowed: the master showed he was resolved, unless the colt moved, to pass the night in the saddle. The animal became uneasy, and shifted about; but without progressing until some time after the clock had struck eleven. Then the colt was suddenly disposed to progress. "Whoy!" shouted its mas-

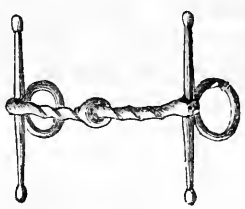
ter, "you have stayed so long to please yourself, now remain a little longer to pleasure I!"

At length the rider was disposed to move, but in an opposite direction to that which the colt was inclined to travel. The animal was also willing to trot briskly, but the farmer would sanction nothing faster than a walk. Accordingly, the pair slowly moved five miles out, and trotted five miles home. Then the quadruped was placed before an empty manger, and left, tired and hungry, to its night's meditations on the evils of disobedience. The above narrative, of course, concludes by stating that the animal proved docile "forever afterward."

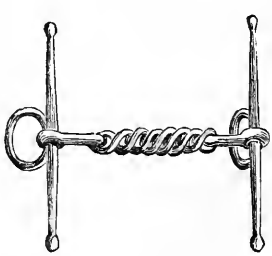
The obvious intention of the above is to discourage the employment of force. The strongest man cannot physically contend against the weakest horse. Man's power reposes in better attributes than any which reside in thews and muscles. Reason, alone, should dictate and control his conduct. Thus guided, mortals have subdued the elements. For power, when mental, is without limit: by savage violence nothing is attained, but the man is often humbled through a conviction of defeat.



A PLAIN SNAFFLE.



A TWISTED SNAFFLE.

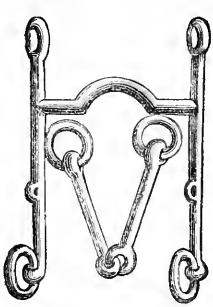


A CHAIN SNAFFLE.

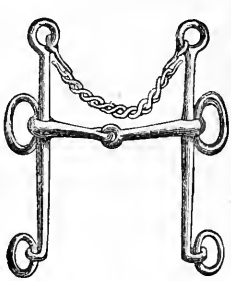
Every species of bit is evidence of a human mistake, and the wrench which it can exert is only the measure of the error. Many valuable animals are annually ruined, under a prejudiced notion about subduing a stubborn spirit. The horse is born submissive. It by nature acknowl-

edges the superiority of man. When the animal refuses to obey, the disobedience only expresses the creature's ignorance of the desires of its master; or declares the presence of some more potent influence than human authority. In either case, patience is the best remedy. Let the rider be passive until the slow understanding of the quadruped comprehends his pleasure; or until a sufficient pause has destroyed the spell by which the servant was enthralled. Pat the neck; speak encouragingly to the alarmed timidity. Then gently walk the fearful life a few steps. In shorter time, with less trouble and with far greater safety, will such measures restore composure, than violence possibly can compel submission; upon recovery, the acknowledgment of the master's sway will be revived and strengthened by that sense of gratitude which, in animals, reason is powerless to pervert.

The snaffle is the gentlest indicator which the bridle possesses. It is generally sold in two forms—either plain or twisted. The latter supposed improvement renders its action upon the lips more sharp, the sharpness being proportioned to the fineness of the twist. The chain snaffle is, however, still more terrible in its operation, and is certainly better calculated to punish than to guide. A plain snaffle is, therefore, much to be preferred, the fact being well illustrated by the circumstance that the gentlemen who depend upon the milder species of check encounter fewer accidents than those riders who place their reliance in such mechanical restraints as are warranted to break the jaw-bone of any restive animal.



THE HACKNEY AND BIRDOON BIT.

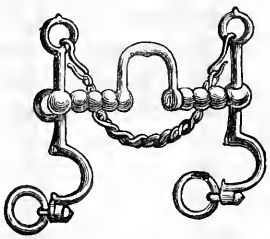


THE PELHAM BIT.

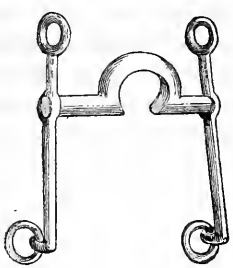
The mildest of the many bits in general use is called the "Hackney." It is a curb bit and birdoon, having a double reined bridle. The last instrument is, however, gradually being superseded by the "Pelham bit," which is capable of creating terrible agony. This restraint riders commonly employ with double reins; but it can be used with a single head

piece. In general it is manufactured smooth or plain, but it also can be twisted to any desired degree of severity.

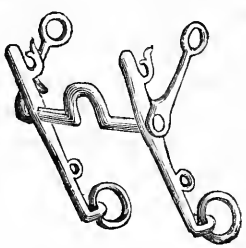
The "Hanoverian bit," like the majority of imported inventions, is a terrible exaggeration of the worst properties that once were thought sufficiently powerful. Its nature is best expressed by the phrase "hard and sharp," which it has almost solely appropriated. A horse cannot grasp this novelty in its teeth, and thus render futile an unscrupulous master's efforts to punish. "The Hanoverian" enables a rider to continue the agony which may have driven a sensitive creature to the confines of madness. As the sides are movable at pleasure, it is esteemed to be an admirable check for a pulling quadruped.



THE HANOVERIAN BIT.



THE SEGUNDO BIT



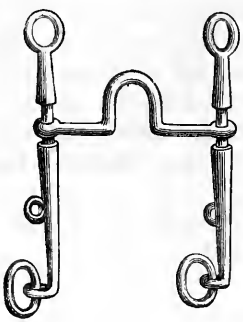
THE CHIFFNEY BIT.

Should none of the foregoing embody the desires of some desperate horseman, there remains another, which is an ugly thing to be put into a living mouth; it is called the "Segundo bit," and is the most barbarous of all the cruelties in general use. It is manufactured of three sizes; the longest of which enables any Christian gentleman to inflict the most lively torture upon the meekest of living creatures.

The "Chiffney bit" was once highly esteemed, and, assuredly, was fully equal to its pretensions; but it seems lately to have sunk low in public favor. The "Sliding Mouth bit" is the last invention of this kind. It is thought to operate beneficially upon animals which are employed in harness. The mouth piece is reversible, having a rough and a smooth side, and it is much approved of, because it professes to afford the horse something for the mouth to play with.

The actions of the dumb, however, are easily mistaken. Anything which pains the angles of the mouth, whether it should be a roughened

bit or a tight bearing-rein, will provoke the horse to toss the head into the air. This motion is regarded by most persons as evidence of spirit, and as signifying a playful disposition; but it is in reality an effort to relieve for an instant the tension which drags against the lips. Another action which gratifies the majority of spectators is to behold a steed move the lips which are whitened with foam. Foam, however, only indicates the presence of thirst, and the reader will, upon reference to "Scald Mouth" in the previous volume, discover that rapid labial motion is not, in the horse, characteristic of amusement.



THE SLIDING MOUTH BIT.

Bits of all sorts are decided mistakes, and the blunder is the greater as the restraint becomes the more severe. The occasional employment of such things is highly dangerous; their perpetual use destroys the sensibility of the mouth. That continued pain should deaden feeling is a wise institution, kindly ordained to prevent the sensibilities of this world becoming the playthings of barbarity. Nature protects her creatures from the incessant use of the goad by causing it to provoke numbness in the region on which torture would operate. The knowledge of this law should instruct mankind in the inutility of habitual severity; while the conviction that the same TENDER PARENT has, in madness, ordained a refuge for sudden agony, should teach all people not to lash the horse into that state which can alone render it truly dangerous.

With the last sentence the main subject of the present volume has concluded. The reader, as he reviews the topics which have been submitted to his judgment, is probably surprised to perceive how little of mystery legitimately appertains to the horse, but how much its requirements accord with the dictates of "common sense." In short, "common sense" may be said to indicate all that the proper comprehension of the stable or its inhabitants need at the hands of a proprietor.

Yet, is it not surprising that society at large regards "horse knowledge" as a mysterious attainment, to be gained only by a long course of actual experience? Such a prejudice is without the slightest foundation. Antiquated customs and exploded notions are common enough in every mews. Filth is, in such places, supposed to be endowed with strange medicinal attributes, and cruelty is patronized as though the perfection

of wisdom laid in the total absence of humanity. The horse, as at present treated, is the victim of ignorance, and is exposed to every abuse. Nature and her dictates are disregarded. The animal is tortured till it submits to abhorrent brutalities. Its instincts, as a created being, are not respected; neither are its necessities, as a living creature, ever considered. Its welfare is secondary to the convenience of the master, and its custody is transferred to the unscrupulous cupidity of the servant.

"*Common sense*," however, demands these things should be amended; and the main purpose with which the foregoing pages were indited was a hope, through a plain statement of facts and an appeal to the reason of the public, of awakening those intrusted with authority over the equine species to the errors attendant upon the present system of Stable Management.

INDEX.

A.

PAGE

Abnormal condition of horn induced by the present mode of nailing 99
Absence of the groom watched for... 255
Accidents are more rare since mutilation is less common..... 381
might be avoided by masters being more gentle..... 263
occasioned by injudicious breaking..... 460
Accomplishments which fit to take charge of a dealer's yard..... 368
According to the position of the elbow so the hoofs must incline.. 412
Action natural to a slanting shoulder 408
necessitated by a straight shoulder..... 405
often witnessed before private cabs in London..... 407
Actions of the dumb are likely to be misinterpreted..... 271
Active animals are always disliked in the stable..... 215
Activity constitutes the horse's pleasure..... 206
Adapted for speed and exertion..... 19
Additional bonds only provoke additional struggles..... 228
Advantage of, and peculiarities of the new slipper shoe..... 111
Advantages and disadvantages of all horns to give drinks with..... 74
of the tin bottle..... 75
Advantages of having the stable well regulated..... 339
of nailing the new shoe to the toe 113
of shoeing racers with tips 473
Advantages secured by adopting the Arabian mode of nailing..... 105
secured by movable mangers..... 191
Advice to purchasers.....121
Affections of the horse..... 201
Aftermeath, or rowen..... 174
Age ought to be accurately observed 147
renders the jaw-bone thin and narrow..... 153

PAGE

Ages have produced no change in the horse's treatment..... 223
Agony is evinced by a "kidney dropper," when the spine is pressed 269
Air-passages, the, can alter their dimensions..... 25
All animals are spoilt if too greatly petted..... 453
in the same stable are subjected to the same usages..... 288
creatures play with food when not hungry 213
feeding and drinking compartments should rest upon the ground..... 310
hands should help the groom when the horse is exhausted..... 348
horses are fully worked during the fourth year..... 150
horses do not consume the like quantities of food..... 197
needful security assured by open trevises in private stables..... 306
Alteration in the nippers consequent upon old age..... 136
Alterations are made to suit the declining breed of horses..... 432
in the incisors..... 159
Aloes, the retention of this medicine within the body..... 165
become hard by keeping..... 57
Aloes cannot be given to some horses 56
often kill..... 56
the purgative of the stable..... 54
very uncertain in its action..... 55
Always choose a horse having good haunches..... 418
see the horse led out of the stable 278
Ambulatory, an, anticipates the necessity of mounting in the stable 310
Anatomical considerations..... 18
Anatomists, were horses extinct, could tell their characters from their bones..... 17
Ancient Arabian shoe..... 95
Anecdote, about breeding horses..... 429

Anecdote concerning swerving in the horse..... 291
illustrative of the evils generated by the present mode of exercise 303
of a jibbing horse..... 284
of the author and Van Amburg... 434
to illustrate kicking..... 272
Anger excited by the colt's restlessness..... 209
Angular prominences are upon the grinding surface of the new molar tooth..... 156
Animal, an, at five years old, pronounced to be in its prime..... 153
not fitted for the saddle, is said to be suitable for harness..... 421
Animals roll when their hair is uncomfortable..... 230
after being conditioned are often passed by hacks..... 464
are beaten when master complains of waste..... 213
are guided by their experiences... 264
are incapable of conjecturing consequences..... 264
are said to eat their own heads off 367
brought to market at three years old..... 146
drink less, having water at command..... 314
having ewe necks are generally weak..... 391
knowing no future, act on their experiences..... 218
love most those who instruct them 283
may be deeply diseased, and therefore called "vicious"..... 271
the, are secondary to household duties in genteel families..... 327
when procured, become members of the purchaser's family..... 379
Apparatus for steaming the horse's food..... 186
Appearance, the, of horses is the strongest evidence against modern stables..... 231
Appliances needed to cleanse a carriage..... 488
Arab horse, the, conforms to no arbitrary mould..... 395
Arabian mode of fastening the horse's shoe..... 100
Arab tail is well set on, active, and powerful..... 387
Arnica lotion used for rick of the back..... 275
Arrangement in the components of the teeth..... 157
of the gutters within stables..... 298
Art cannot amend a natural development..... 450
Ascertain, to, if the horse has been properly groomed..... 340
Aspect of the mouth materially changes after the first year..... 138
At grass, horses enjoy free communication..... 307
Attempted cures of jibbing are uncertain and expensive..... 283
Attends at fairs and on market days 431
Attend to the heels on the following morning..... 352
Author's plan of nailing..... 105
suggestions should be tried for their own sakes..... 297

B.

Back-bone of the horse..... 382
Backing on to the gangway..... 278
the horse out of the stall, supposes the spine to be injured..... 278
Back of the stables..... 317
the, as seen from above..... 381
the, is often injured..... 275
the, is supported by eighteen ribs on either side..... 40
Bad hay and corn commonly given to horses..... 179
Bad hay often cut into chaff..... 177
Bad qualities of the cow-bellied horse..... 404
Balling, blistering, firing, and bleeding in veterinary practice..... 85
Balling irons, common form of..... 62
improved form of..... 62
only of use to timidity or inexperince..... 60
Professor Varnell's newly invented 62
Balls, arguments in favor of..... 73
caustics often employed in large doses with..... 58
commonly intrusted to grooms 54
horse, how made..... 54
how prepared..... 57
how moulded before delivery..... 58
how to administer..... 63
quiet mode of giving..... 67
the form of..... 58
the swallowing of, should be watched for..... 68
Barouche and landau..... 482
Bars or open trevises admit of equine familiarities..... 307
Battering and fixedness aggravate the weakness of the fore limbs. 417
Beans, bad sample of..... 188
Egyptian..... 188
Egyptian, free from objection..... 188
English, are too astringent..... 188

Beans, English field, unwholesome when new 187
good and bad sample of, contrasted with each other..... 187
should be steamed..... 188
Beard is sometimes present on good oats..... 180
Bearing-rein, the, interferes with the use of the head..... 389
Beating the horse in a stable is dangerous..... 209
Beauty in horses generally coincides with excellence of spirit..... 399
Be brief in your inquiries in the dealer's yard..... 374
Bed, a, is uncomfortable when not horizontal..... 257
Beer recommended for the horse with a sensitive skin..... 290
Behavior of grooms requires amendment 338
to be exhibited toward dealers..... 373
Bell, a, connected with the grooms' cottages, enables assistance to be summoned..... 325
Benefits derived from having a stock of frosted shoes..... 127
secured by a new mode of nailing..... 105
Better division of work for the horse 342
have no carriage than one kept in a damp shed..... 324
Bird, the, returns to its cage, and the horse seeks its stable..... 251
Birthday of all horses arbitrarily fixed by the Jockey Club..... 146
Bishoped teeth..... 134
Bishoping easily detected..... 134
described..... 134
Bit, the Pelham, its recommendations..... 522
the Hackney and birdoon..... 522
the Hanoverian..... 523
Bits attached to ladies' bridles..... 519
buckled and sewn on..... 519
Blackguards who sell horses are not horse dealers..... 138
Black mail is exacted by most grooms..... 329
Blacksmith's forge, a, during frost... 127
Bleeding can, its form and use..... 88
fleam, described..... 89
horses should be blinded before... 91
lancet not recommended for..... 89
not necessary in many cases..... 87
strange love of..... 86
was formerly fashionable..... 85
Blistering and firing often united... 78
a stable right through..... 80
often resorted to, to please the owner..... 80
Blistering oil should be procured of a chemist, and diluted..... 82
oil should be quite clear..... 82
ointment is made with old flies.... 82
omnibus horses..... 81
Blisters and oak bark proposed for rick of the back..... 275
and the firing iron counteract each other..... 78
are at present too powerful..... 78
only of late years have been reduced in strength..... 78
Blood horses draw weight by strain upon the muscles..... 401
can should be pressed against the neck..... 91
if cold, and exposed to the air, becomes oxygenated..... 24
mare and foal..... 430
stick depicted..... 90
when cold, has lost its living properties..... 245
Bloods want an infusion of a little cocktail..... 433
Body, horse's, beautiful when skinned..... 45
the, anatomically considered..... 17
the, should be judged of as a whole..... 386
Boiler-house between the gig-house and first loose box..... 321
Bolting commonly ensues after a fit of jibbing..... 280
through the stable door..... 239
Bone bears the burden when the body descends a slope..... 253
Bones, character of the animal pronounced by..... 17
of the fore extremity, how retained in their places..... 42
of the spine described..... 38
of the forelegs, their action is regulated by the shoulders..... 408
Bones, the, of the leg do not uphold each other..... 408
Boy picking hay..... 172
Boys should not be employed to lead horses through stable doors..... 240
the, about training stables are not trustworthy..... 470
Bracy Clark's jointed shoe, remarks on..... 118
Bray of the donkey and neigh of the horse, how produced..... 47
Brain, the, becomes congested by moving in circles..... 451
Branch drains also oppose the ingress of rats..... 300
Branches of the lower jaw contract with age..... 136
Bran mashes, how to prepare..... 55

Bran mashes, more gentle and more safe than aloes..... 55
Breaches of stable decorum by young horses..... 207
Bread, given to horses in Germany, might be used as food..... 195
Breaker, the, operates only on the fears of the colt..... 453
Breaking and training..... 449
begins at three years old..... 147
loose..... 217
should be gradually enforced from the earliest age..... 455
Breaks are not often publicly used to exercise horses in 304
Breast collar-strap..... 507
Breathing life treated as it were an inanimate chattel..... 200
Breeders should take example from the agriculturists..... 428
Breeding, its inconsistencies and its disappointments..... 427
of horses is at present altogether wrong..... 437
suckling, and living on grass..... 446
Bricks and mortar are valueless in comparison with horse flesh..... 298
Bricklayer's trowel likened to the teeth..... 158
Bringing the sole near to the ground, danger of..... 102
Brittle hoof..... 99
Brougham horse, a..... 371
Brougham or phæton harness..... 503
Brushing or cutting about the pastern joint..... 121
Bulk is not always an assurance of strength..... 419
merely distends and injures the stomach..... 177
Bull neck, a..... 391
Bustle hails the appearance of a stranger in the stable..... 204
Buy a young horse by the teeth as regards age..... 164

C.

Calkins destroying the even bearing of the foot..... 109
in the slipper shoe made by thinning the quarters..... 111
Can, bleeding, its form and use..... 88
blood should be pressed against the neck..... 91
horses have aristocratic predilections..... 215
Capacity of most doors to stables... 235
Capital and tact required to job carriages successfully..... 368
Carriage, a, without C springs, and a brougham..... 483
harness, a full suit of..... 504
horses are not kept by the London dealers..... 367
houses are always large enough... 233
the treatment required for, when in its house..... 492
Carriages..... 477
congregate on wet nights before fashionable mansions..... 323
Carrying round the food to the stables..... 192
Carters sit upon the loins of young horses..... 265
Cart horse, a..... 401
with a Roman nose..... 394
horses are not formed to trot..... 273
have long mustaches..... 394
Cartilago nictitans..... 36
its special use and action..... 36
Carts should never exist without springs..... 386
Cast in the stall..... 231
under the manger..... 259
Cause of chink of the back is the greed of proprietors..... 273
Cause of odd hoofs in the horse..... 413
Causes of cutting..... 121
which increase the liability of the foreleg to injury..... 416
Caustics dangerous as internal medicine..... 59
Cavity of the pulp in the molar teeth 157
Ceiling of stables, how it is formed 316
Certain steeds snap and bite when being dressed too violently..... 289
Channel diminishes with age..... 136
Character and color of upland hay 173
lowland hay..... 173
Cheap harness is generally dangerous..... 496
horses are not to be bought in London..... 359
Cheapness is not economy when buying oats..... 182
Chiffney bit, the..... 523
Child, a, might sit the thoroughbred trot..... 421
Chink of the back..... 266
Circular chest, the, good for slow work..... 401
exercise..... 452
motion induces blindness..... 451
Clark, of Edinburgh, his old shoe preferred to new inventions..... 121
Classic mind, the, recognized the signification of the horse..... 242
Clean saddle, how to..... 516
Cleaning harness, the proper method of..... 504

Cleansing and cooling with hot and cold water 349
an exhausted horse 348
an unclipped horse 347
Clearing the fence 462
Cleaveland bays are a dangerous property 368
Clinches are more secure when made upon the toe 114
Clicking or forging common toward the end of a long journey 124
Clipped horse, a, is a deformity 346
Clipping and singeing 343
induce many terrible disorders 344
Clock-loft and lumber-room above the sheltered space 320
Closing the wound after having bled the horse 92
Clothes and saddle cannot be retained on the herring-gutted horse 404
Clover hay, first crop of 174
second crop of 175
Coal-cellar 319
Coaxing the foal to feed 444
Coax the horse when giviug medicine 78
Collar-rope is bitten through without design 216
Collar-strap disfigures the neck and mane 218
Colt at three years may cut sixteen teeth 149
Colts are wayward creatures 207
Comminution of the food described .. 155
Common form of horn employed to administer drinks 74
Common sense is alone necessary to understand horses 524
Common stallions are generally led through the country 431
Comparison between the wild and domesticated horse 201
Complex calculations required of the horse dealer 362
Composure returns only when the rug is destroyed 287
Compound soap liniment recommended for rick of the back 275
Condition of horses referred to 432
of stable windows generally 315
of the blood explains the diseases of the foot 246
Conduct of most drivers when the horse bolts 293
Conjunctiva, nature and distribution of 35
Consequences of being cast in the collar-rope 224
of being cast under the manger ... 259
of too much paring, miscalled disease 106
Contents of the abdomen and thorax 403
Continued standing is a bad symptom 352
Contraction of the jaw-bones forces the teeth into the mouth 158
Contrast between a three-year old and a bishoped sixteen-year old mouth 135
between the permanent and milk incisor teeth 160
Cooking food for horses no novelty 193
Copers esteem a kidney dropper a valuable horse 269
the, always flurry a horse when pretending to show it 277
Corner incisors first cut at nine months old 141
milk incisors, being shed, announce five years old 153
Corns are natural to upright hoofs ... 415
Corn promotes fat 187
should be crushed on the premises 184
when crushed, requires further preparation 186
Corpora nigra, present in the horse and camel 31
Cost of a separate house for the groom would be fifteen pounds per annum 333
of horse flesh is much increased by hard food 166
Coughing, its danger during the administration of a drink 75
provoked by raising the head 76
Countenance during a fit of jibbing 282
Countersinking for driving nails 113
Course of the food, how arranged ... 28
Covered ride round the stable 302
Cow-bellied or pot-bellied horse, the evils of 404
Cribbing induced by confinement and indigestion 205
Crime is the climax of social frailty 426
Crowded forges prevented by laying in a stock of frosted shoes 127
Cruel imprisonment 201
Cruelties undergone at three years old 148
Cruelty and roguery are associated .. 425
cannot promote development 164
is practiced to coerce the jibber ... 280
of rasping the hoof to fit a small shoe 131
of the present mode of breaking in 141
resorted to after bleeding 94
sometimes changes the action of the straight shoulder 406
unintentionally inflicted on all horses 168
Cruiser and Mr. Rarey 453

Crusta petrosa..... 157
is endowed with a limited power of growth..... 158
Cures proposed for cutting from exhaustion..... 122
Curry-comb should be abolished..... 337
Curveting and lunging are alike in their influences..... 449
Customers are protected by the author's recommendations..... 378
should be better suited than pleased..... 364
Custom of the drivers attached to the former fly wagons..... 265
Cutting away the horny sole..... 103
often produced by exhaustion..... 123

D.

Damp stables are equally costly and dangerous..... 322
Danger consequent upon the internal use of caustics..... 59
of casting the entire weight upon the wall..... 103
of coughing during the giving of a drink..... 75
of getting the hind leg beyond the post of the stall..... 230
of gorging on dry wheat..... 169
of standing in the manger..... 209
Dangers of racing plates..... 114
of the present method of nailing.. 100
Darkness does not incapacitate the horse's eye..... 32
Date is apt to deceive the breeder... 440
Dead donkeys not rare..... 47
Dealers buy with a view to certain purchasers..... 375
do not show all their stock to every chance customer..... 138
generally possess one or two blood-weeds..... 369
horses are exercised in front of the house windows..... 304
take much trouble to buy horses.. 359
visit horse fairs and breeders of stock..... 364
will not submit a horse of known unsoundness to a veterinary examination..... 378
Deformity consequent on neglect of the hoof..... 102
Deglutition described..... 29
Degree of motion permitted in the stable..... 202
Deluging with water does not please the horse..... 346
Dentine..... 157
Depth of the lower jaw in the young horse accounted for..... 157
Deranged stomach denoted by fastidious and by voracious appetite..... 196
Detailed description of the surface-gutters of the stable..... 299
Development of the hyoideal muscles 400
Diagrams of the opposite formation of thorax..... 402
Difference between fullering and countersinking..... 113
between man and horse in their lodging..... 233
in the food of man and horse when in training..... 170
of head in a one and a two-year old 144
Different articles eaten by horses... 166
forms of pasterns..... 410
kinds of ears..... 396
kinds of snaffles..... 521
Digestion deranged by modern stables and present food..... 196
of the horse is frequently impaired 342
Disease in the horse is exposed to the conjectures of ignorance.... 285
Discovered in the morning with the head under the manger..... 258
Dishonest dealers always demand a written warranty..... 365
Disposition of the horse should be studied..... 77
Dock, the, should be regarded as a continuation of the back-bone.. 386
Domesticated animals generally live on prepared food..... 167
horse is very old by its thirtieth year..... 165
Donkey, the, belongs to the equine race..... 46
Donkeys natural to the sandy desert 48
have to toil after man's day of labor has ended..... 51
prejudices concerning, tend to their misery..... 51
serve only the poor..... 49
the loins of, uphold riders..... 51
thrust into any hole for the night. 49
work before the master begins to labor..... 50
Do not coax a tired horse to feed.... 351
Do not punish the horse for jibbing. 281
Doors of stables should fold, or be divided through the center..... 307
open on to the ambulatory..... 307
size of, according to Professor Stewart..... 235
Double coach-house..... 319
Doubt as to the weakness of a hollow back..... 384
Down in the hip..... 237

Drag on the clinches the consequence of the thin heel shoe.... 120
Draught horses require high and good haunches..... 421
Draughts in crowded stables enable the horses to live..... 81
Draughtsmen, their qualifications... 478
Dress, a, carriage and a chariot..... 482
Dressing the heels..... 353
the horse..... 340
Drinking, the manner of, explained. 71
Drinks or draughts, a form of horse physic..... 68
danger of administering..... 69
generally objected to..... 68
reasons for these objections..... 68
sometimes poured down the nostril..... 69
the objection to so giving medicine..... 73
usual mode of giving..... 74
Driving a nail too fine..... 100
Dry fodder prematurely wears down the teeth..... 133
Drying the heels..... 350
Dryness affects the nature of the horse's food..... 171
Dusk, and at ten o'clock, duties of... 341
Duties of the night-watcher..... 325

E.

Each groom should lead two horses to exercise..... 306
Earning its keep during lactation... 436
Early and late is the best time for exercise..... 466
Ears, different kinds of..... 396
Eastern elevation of the contemplated stables..... 325
Education, modern, makes men knowing and not good..... 198
should commence with birth..... 455
Effects of living upon grass in the field..... 430
Egyptian beans are mild and sweet.. 188
Eight months' solitary imprisonment is not rest..... 475
Eight o'clock duties..... 340
Employers should be blamed for the groom's debasement..... 330
Employment of the drawing knife a necessity..... 106
Enamel..... 157
English mode of paring the foot..... 102
thorough-bred tail approaches to the Arab..... 387
Entire horses are not necessarily savages..... 433
Entreaty not to credit the possibility of a "vicious animal"..... 294
Equine race, the, are treated as creatures without habits or instincts..... 241
Estimable qualities of hollow-backed horses..... 384
Even man's generosity causes the horse to suffer..... 475
Every gentleman his own horse-breaker..... 453
Everything in the stable yields tribute to the groom..... 330
Evils of long nights to horses and to grooms..... 198
of modern stables..... 200
Ewe neck, an..... 391
Exaggerated view of a weakly animal with dangerous action..... 424
Examine the angles of the mouth before purchasing..... 398
Excellence of the racer's action in the trot..... 420
Excessive weakness has lost many a race..... 472
Exchanges, with horses, are very expensive..... 373
Excited horse, mouth of an..... 288
Excitement ensues upon first sniffing the pure air..... 334
prevented by rapidly and silently distributing the food..... 312
Exercise, during training, is given at mid-day..... 466
can be given in all weathers under the ambulatory..... 303
Exhausting labor renders bleeding unnecessary..... 87
Exhaustion in youth is a bad preparative for the stud-farm..... 428
Expense of feeding the horse, how increased..... 193
would not be increased by proper treatment..... 463
Experiments, uselessness of, as a test for medicine..... 60
Experiment, testing the effects of a thick and of a thin covering..... 344
Explanation of the doctor's difficulty 303
of the term "May bird"..... 364
of the word "nicking"..... 387
Expression of the ears..... 396
Extended view obtained by mounting into the manger..... 210
Extravagance of hard food..... 166
Extreme age rare in the horse..... 88
Eye, the, is a certificate of the horse's origin..... 30
Eyes, the, of the horse are much exposed to injury..... 291
various sorts of..... 397

F.

Fœtus, the, is injured by the mother being sucked while breeding.... 445
False nostrils, situation, nature and uses of..... 25
Fancy is most active in the weakest intellects..... 227
Fangs of the milk teeth are absorbed 160
Farmers, the, idea of a breeding mare 447
Fat is laid on, although lameness exists in the foreleg..... 243
is promoted by the food—horses are sweated to remove fat..... 467
Faults inseparable from stables..... 233
Fearful change takes place when a horse is "thrown up" to breed. 435
Fed between the bursts..... 472
Feeding of the grazing and the stabled horse..... 429
the mare..... 455
the newly-born foal..... 443
Feeling, instincts or inclinations of the horse are never heeded..... 198
Feet of farm horses are generally sound 246
of thorough-breds generally bad.. 115
Felt under-pad..... 512
Few gentlemen's stables are supplied with the best grain..... 181
grooms live in the house..... 327
horse dealers die rich..... 367
horses reach their thirtieth year .. 155
human beings should be exposed to the groom's temptations.. ... 330
tails are well set on..... 387
Fleam, the, as made to be struck by the hand..... 89
the, is preferable to the lancet.... 89
the, described as used for bleeding 89
Field (newspaper) description of roughing, from..... 129
Fifth molar present by the second year..... 145
Fired, sometimes, and blistered after it..... 78
Fire has been kindled under a jibbing horse..... 281
First crop of clover 174
drops of blood taken from the forefoot are cold..... 243
lessons in breaking should commence with the foal 141
permanent tooth appears at one year old..... 142
the, harness put on a foal..... 456
Fittings needed for the interior of a carriage..... 490
of the sheltered space 320
Five-feet wide doors do very well for sleepy animals..... 237
Flattery is much relished by all lower life..... 456
Flesh is only another name for muscle..... 381
Flexor muscle, the, influences the direction of the foot..... 412
Flooring of the proposed stables described..... 298
Foal first nips the grass when four months old..... 141
one fortnight after birth 139
the, may accompany the mare in her work..... 436
Foals are generally crippled before they are born..... 428
should be taught to regard men as friends 444
teeth at birth..... 139
Folly of docking..... 380
of employing blisters to the legs.. 79
of ornamental scroll work instead of plain bars..... 306
of tying a horse by its head to the manger 225
Food..... 168
for the foal if the mare's milk is tardy 443
not thoroughly digested when presented dry 165
of horses is contaminated in modern stables 318
proper for an exhausted horse..... 347
should be proportioned to the animal's fatigue 351
the greatest of many evils under which horses suffer..... 169
when too abundant is wasted..... 212
Foot, the, perspires through the horn 353
Foreleg over the collar-rope..... 221
Forelegs in the manger..... 208
Forelimb is not a straight pillar..... 409
the, is joined to the trunk by muscle 41
Forge, horse's dread of..... 109
strange custom of charging different prices in..... 110
the state of the, during a sudden frost..... 127
Formation of the soil of stable 301
Former shoes, unsuit for modern use 96
Form of thorax which is best suited for slow and for fast work 402
the, of a mare for breeding..... 438
Four fully-grown permanent incisors only denote three years of age..... 147
miles an hour is a fair exercising pace..... 305
or five o'clock duties..... 341
permanent incisors in each jaw announce four years old 152

Four "roomy" stalls may be converted into three loose boxes.... 332
Fourth molar is the first permanent tooth .. 142
year, at the, the horse should be taught to leap 416
Four-year olds are thought to need no indulgence..... 151
Four-year old colt may be placed between shafts..... 459
Fracture of the haunch disqualifies for a gentleman's service..... 238
Freedom is naturally desired by the horse 220
Freemasonry, the, which exists between steed and rider..... 372
French martingale, the use of..... 518
revolution, the nobleman and Bastile..... 252
Frequent change of shoes injures the feet of thorough-breds..... 473
Friction, when brisk, warms more than slow walking exercise..... 352
Frog and sole injured by the wedge-heeled shoe..... 119
Front of the new stable has no intermediate rails..... 319
teeth appear to be but temporary. 145
teeth stick out like spikes at thirty years of age..... 167
Frosted shoes worn out in three or four days 128
Frosting or roughing as generally performed..... 128
Fullered shoe..... 113
Full loins are generally associated with a stout dock 393
set of horse clothes..... 498
Fuzzy tail disappears at one-year old 143

G.

Gangway, the, should be kept clean 338
General complaint of the roguery of horse dealers 425
mode of leading the horse out of the stable..... 236
view of the shoulder and foreleg.. 416
Gentlemen like the springy seat afforded by a young spine..... 146
should respect their station when treating with dealers 378
when ignorant of horse flesh, should not attempt display..... 370
Gentleness and caution requisite when trying a fresh horse..... 372
should be displayed during a fit of jibbing..... 282
Gentle riding and proper grooming would sustain condition..... 475
German silver makes the best ornaments for harness..... 496
Gestation is opposed to lactation..... 445
Get up..... 351
Gig, a, and a two-wheeled dog cart.. 485
Gig harness and kicking-strap..... 502
house..... 319
Girths of saddles generally considered..... 509
Giving a horse a quart of malt liquor 347
out macerated food..... 191
Glycerin and rose-water removes scurf..... 290
wash, the mode of applying it to the skin..... 337
Gnawing the manger rail the result of long captivity..... 204
Good bridle, the characteristics of... 517
feeders are too commonly sluggish animals..... 352
form, a, generally requires little aid in foaling..... 439
horse, the, is good for every purpose..... 420
oatmeal, how to recognize..... 178
oats display no vast difference in size..... 180
reach, a, in the trot, a valuable quality in a hack..... 420
saddle, a, should fall into its proper place..... 515
shoes are spoiled by being roughed 128
Gowing's, Mr., mode of giving a ball..... 65
its advantages and defects..... 66
Graced with the sweetest manners, sells the horses 362
Grass, horses are generally shod with tips when out at..... 116
suggests the food of the horse..... 20
the natural food of the undomesticated horse 133
Great muscular power is necessitated to move the head..... 388
Greenhorns disliked by the regular dealer 373
Green meat and mashes are better than aloes..... 469
Grooms..... 327
conceive the horse injures them... 222
display the union of innocence and knowingness..... 354
doing house work generally neglect the stable..... 355
flog the horse for standing in the gutter..... 257
generally manage their nominal masters..... 229
imagine the foot to be a mystery.. 353
like fat in horses..... 212
like the horse to have hard meat.. 193

Grooms never regard cutaneous sensitiveness as a disease..... 285
pretend to comprehend impossibilities..... 355
pride themselves upon being "*close*"..... 355
regard see-sawing as a fearful "vice"..... 205
report effects, and never hint at causes..... 229
ride as they please when exercising horses..... 303
singe the hairs inside the horse's ears..... 395
should not ride when exercising horses..... 306
Groom's room is situated over the boiler-house..... 324
idea of a horse's long imprisonment..... 211
secret mixtures are the originals of patent food..... 196
Ground plan of the proposed stables 321
Gruel is proper for an exhausted horse..... 351
Guess only at the age after the fifth year..... 163

H.

Hair should never be inclosed in the wound after bleeding..... 93
Hairs from oats are felted together in the stomach..... 183
on the oat..... 182
Half an acre of close grass should be attached to each loose box..... 309
Hames with double eyes..... 506
Handling the feet..... 457
Hand-over-hand pace, the, is bad... 423
Hard food must be a tax on the muscular system..... 467
provender wears the teeth and shortens the life..... 165
substances derange the horse's digestion..... 186
Hardships undergone at three years old..... 148
Harness and food are benefited when separated from stables..... 317
and stable sundries..... 494
for the young..... 456
horses are usually imperfectly broken..... 459
Hat, the, should be removed before a horse is led out of the stable.. 240
Haunch-bone is often broken by striking against the door-post.. 238
Haunches, the, will express the qualities of the horse..... 419
Hay, aftermeath..... 174
clover, first crop..... 174
second crop..... 175
from legumens might cost more, but would be better..... 189
heated..... 175
loft, the, should be over the coach-house..... 333
lowland..... 173
musty..... 176
promotes fat..... 189
should be sorted before it is placed in the rack..... 171
upland..... 172
weather beaten..... 176
Head, carried straight out is ungraceful and unsafe..... 390
the, must be retracted before the horse can rise..... 260
the, by its movements inclines the body in certain directions..... 380
the, denotes the treatment of the horse..... 393
Health suffers from improper food.. 169
Heaped manger unsuited for a famished horse..... 178
Heat and impurity naturally provoke cuticular irritability..... 224
and moisture correct the unwholesomeness of food..... 190
Heaving at the flanks..... 440
Heavy animals were formerly used for gentle purposes..... 422
carts having long reins are injurious to the horse's spine..... 273
Heels are left unprotected if the shoeing is neglected..... 106
Herald painting—how its charges are regulated..... 478
Herbs, when dried, retain their properties..... 171
Herring-gutted horse, the disadvantages of..... 403
High-spirited horses are the most troublesome when confined..... 215
stubborn horn the author prefers in the horse's foot..... 414
Hind hoofs enjoy a freedom denied to the forefeet..... 244
legs, the, have a tendency to increase the burden of the fore limbs..... 417
Hinge of the spine for rearing..... 44
Hobble the hind legs of a mare..... 441
Hogs' skins are seldom perfect..... 515
Hollow-backed horse..... 383
cavity at the toe of the slipper shoe 111
Home, a, for a horse is not the same thing as a home for a man..... 298
Hoofs are spoiled by roughing during frost..... 128

Hopeless struggle of mankind..... 200
Horn for giving drinks, common form of..... 74
improved form of..... 74
of the hoof described..... 98
whalebone and wood are best for stable instruments..... 336
Horse auction marts deal largely in unsound horses 277
a, when sold should suit the purchaser..... 361
dealers..... 357
dealers are alive to the value of their stock 379
dealers generally occupy the same place at successive fairs..... 365
is intended to run unshod over grass land..... 116
is very choice when eating grass. 170
its disposition should be studied... 77
lowers the head to feed and drink..... 170
the, cannot turn in its stall without twisting the back..... 279
the, has embraced its position..... 252
the, has not changed with the mutation of society 449
the, squatting suddenly like a dog denotes a kidney dropper..... 267
knowledge is not a mystery..... 524
Horses when they speedy cut are liable to fall, as though shot.... 423
should be taken into use with bodies uninjured..... 463
are always blamed for human carelessness..... 234
are by grooms credited only with evil qualities..... 216
are furnished with the means of self-injury..... 262
are inclined to rest at mid-day.... 468
are often captives for many days in the stall..... 211
are put to the greatest exertion at five years of age.. 153
are seldom dressed when brought home late..... 230
are starved when confined to small stables..... 81
body still beautiful even when the skin is removed..... 45
can protrude their heads through the half-opened doors 308
can see in comparative darkness.. 228
dread the forge..... 109
eating from the ground, require no hay-rack..... 310
eat various substances in different countries..... 194
have no right to do as they like with their lives 207
Horses have perished from all four feet being blistered..... 78
have to sleep on slanting pavement..... 256
having wide hips and large thighs very seldom cut..... 122
intended to breed should be tenderly nurtured..... 435
lower the head while drinking..... 76
must feel their captivity 202
should be exercised on the premises..... 304
slide backward on the slanting pavement..... 259
the, painted by Stubbs, are lost to the present generation..... 407
their rest broken by the inclination of their beds 257
which kick when the foot is in the stirrup are often quiet when mounted 272
clothes generally much too short.. 350
Horse flesh is being ruined by the race-course..... 432
Hot-water pipes traverse the proposed stable..... 322
How grooms contrive to spend so much money..... 329
to examine for kidney dropping .. 268
for the signs of cutting..... 423
to feed a famished animal..... 178
to feed a hunter..... 471
to feed the mare and foal..... 443
to make good gruel..... 178
to macerate food..... 190
to procure good oats..... 182
to recognize a bishoped tooth..... 134
Human child not a man when the permanent teeth appear..... 152
Humanity in purchasers would destroy roguery in dealers..... 425
Hunters, as a rule, are not kept by the London trade..... 369
must be over four years old..... 146
Hunting breast-plate 511

I.

Impaling the foot on a projecting nail..... 101
Imperfect vision renders a horse dangerous..... 293
Importance of warmth to the horse.. 322
Impossible to convince most grooms. 220
to make the teeth declare a horse older than it really is..... 162
Imprisonment engenders eagerness to breathe the fresh air 237
Improvement has not reached the jail of the horse 297

Impure air, sameness of food, and confinement generate disease.... 243
residence, an, generates a morbid craving..... 329
In cavalry stables, horses are separated by bales..... 307
Incisor teeth are not employed in the stable..... 167
Incisors, the, which denote a three-year old..... 147
Inclination of the feet of horses..... 412
Incline of the superficial gutters.... 301
Inferior margin of the jaw still thick at four years old..... 151
oats possess the longest hairs..... 183
specimens of oats commonly adulterated..... 179
Injury done by boys who hold your honor's horse..... 124
occasioned to the crust of the hoof by nailing..... 100
often done by the laws of the Jockey Club..... 146
or blemish is feared by dealers as much as death..... 366
Inquiry into the conduct of colt and groom..... 209
Instinctive acts in man..... 295
Instruction properly imparted does not strain the body..... 461
Interior of the stable should be colored green..... 316
In the end, it is cheapest to act justly 331
field, horses rest with the hind legs highest..... 247
stable, horses stand with the fore-feet highest..... 248
Inward soft organs govern the hardest outward secretions..... 118
Irish horses are famed as good fencers..... 462
Itching and scratching rank as vices in the stable..... 223

J.

Jaw-bone becomes thin and narrow with age..... 153
in early life, is full and round at the lower margin..... 142
Jaw, the, of a two-year old intimates approaching change..... 145
Jealousy regarding a choice colt..... 376
Jibbing first alluded to..... 280
is as common now as it was formerly..... 286
is equine epilepsy..... 280
most common in heavy and in harness horses..... 282
Jobbing requires skill in placing horses..... 368
Job-masters assert the straight shoulder is the best for harness purposes..... 406
the, terms of..... 368
Jockey Club, folly of its laws..... 146
further alluded to..... 163
Jolly fun of the trainer's stable..... 470

K.

Keep the stableman to his duties.... 355
Kettle, a two-gallon, wanted in every stable..... 178
Kicker, a, and a biter..... 434
Kickers often stand quiet when mounted on the opposite side... 273
Kicking in the night..... 227
"Kidney dropping" is esteemed a terrible "vice"..... 266
Kidneys, the, are not concerned in what is termed "kidney dropping"..... 270
Kiln-dried oats, to detect..... 185
"Kim ovare"..... 336
Kindle an opposite emotion and fear is destroyed..... 293
Kindness preferable to any mechanical restraint..... 61
is especially remunerative when bestowed upon the mare..... 437
is responded to even when consciousness is partly lost..... 283
Kinds of horn composing the wall of the hoof..... 98
Know your own wants before a dealer's yard is entered..... 373
Konisberg oats..... 180

L.

Labial action often mistaken in the horse..... 524
Lachrymal gland..... 35
Lad, a, should be allowed in every stable..... 332
Ladies flushed from the ball-room often sleep in damp carriages... 323
patent stirrup..... 514
Lady, the, and the magistrate..... 164
Lady's palfrey in the reign of Charles the Second..... 422
side-saddle..... 513
bridle is generally light..... 517
"Lampas" explained..... 157
Lamps, large and small, for a carriage..... 492

Large lungs favor the increase of weight ... 401
nostrils and mouth show breeding in a horse ... 397
stables are generally well managed ... 332
Lying on the gangway ... 261
Lead liniment softens the exudation after blistering ... 84
Leanness of hay-fed horses accounted for ... 189
Leaping, how it should be taught ... 461
Legitimate horse dealers, all have private yards ... 358
as a body, are honorable men ... 360
Legs, lower parts of the, contain no muscles to stimulate ... 82
of the horse highly sensitive ... 79
Legumens, sown broadcast and reaped, form a better kind of hay ... 189
Length of back is of no separate importance ... 386
Let no man talk about a "vicious horse" ... 295
Licking the manger, an endeavor to make employment ... 204
Life is fixed to no one condition ... 371
Light draught horses can best dispense with muscular loins ... 383
generally stops the kicking in the night ... 227
should always be present in the stable ... 228
work need only exercise the mare 436
Lining of harness is soiled by bad grooms ... 505
Liquid which drains from steamed food is a nutritious drink ... 186
Liquor arsenicalis is good for the skin ... 290
Load, the, being delivered, the heavy cart is trotted back ... 273
Locality for the proposed stable ... 319
Lofty crest, a, is best induced by proper food ... 460
Loins, the, are without bony support 382
cannot be too large or muscular .. 382
transmit the force of the haunches 382
the spines of, and of the sacrum, point different ways ... 44
Long and short legs, the value of each ... 405
Loop, a, of string, used instead of a twitch ... 75
Loose boxes eighteen feet square ... 298
would cure many "vices" of the stable ... 222
shoes, perils of ... 101
Low-bred haunches express weakness ... 418
Lower jaw becomes sharp with age. 136
Lowland hay ... 173
Lunging ... 451
Lungs, capacity of, illustrated ... 19

M.

Mail phaeton, a, and four-wheeled dog cart ... 484
Malt liquor, horses soon grow fond of ... 347
Man alarms the horse by needless cruelties ... 263
alone has conceived a life without a pleasure ... 206
and horse supposed to change positions—the result ... 206
could not create the perfection which he injures ... 44
is not more gregarious than the horse ... 474
is not more humane than formerly 381
is to blame for the horse's stable conduct ... 211
neglects the life which cannot be repaired ... 234
not fitted to exert absolute authority ... 80
and horse are not a match in strength ... 521
Man's fingers, a, cannot test the expansibility of a horse's foot ... 415
responsibility, how evaded ... 53
senseless adherence to antiquated forms ... 452
Manger, the, rope fastens the head immediately under the opening to the hay-loft ... 310
Manner of judging the limbs ... 423
of using the blood can ... 92
Manners, the, requisite in a horse dealer ... 361
Many animals are ruined in the breaking ... 452
animals become restless when clothed for the night ... 286
artisans, conjunction of, to form a carriage manufactory ... 479
grooms also expected to act as gardeners ... 327
horses are unable to pass through a stable door with calmness ... 239
houses have doors far larger than any stable ... 235
horses lamed by the wedge-heeled shoe ... 119
muscles of the haunch rise close to the dock ... 387
smiths will profess to cure clicking ... 125

Many things must change before present customs alter..... 331
Mare, a, generally hardly treated ... 445
Marks of the teeth are unworthy of dependence..... 137
Macerating box for food..... 190
Mastication a compound process..... 155
Master and groom like a quiet stable 203
May bird..... 364
Medicine, the less the better during training..... 469
Melton girth and martingale..... 509
Men desire only to know the physical necessities and capabilities of the horse..... 199
who know nothing of such matters, order the building of stables..... 234
Meshwork of veins, a, lies under the secreting membrane of the hoof..... 245
Method of treating the newly-born foal..... 443
Midst noise and bustle the horse dealer must be calm..... 361
Might not Egyptian beans be grown in England?..... 188
Miles's works on the horse's feet recommended..... 415
Miniature dewlap a good point..... 400
Minor operations..... 53
Mistake, the, of a summer's rest..... 464
Mode of dressing a wet horse..... 349
of distributing food to restless horse..... 312
of fastening the Arabian shoe..... 100
of sitting the horse in the olden time..... 450
Model foot, the, is not good in the author's opinion..... 414
Modern Arabian shoe..... 95
carriages are fraught with danger to the upper classes..... 323
mode of nailing..... 97
stables as they may be adapted.... 332
stables invite accidents..... 262
Molars are not level in aged horses. 154
Molar teeth are not all of one size or the like form..... 155
tooth of an aged horse..... 159
Money does not constitute the entire price of a good horse..... 375
is saved by encouraging habits of regularity..... 318
paid to the job-master..... 369
sunk in stables is most remunerative..... 298
More bonds do not destroy the desire to be free..... 220
important portion of the groom's duties..... 343
Morning exercise should begin the day's work..... 340
exercise, the, is essential to the master's safety..... 334
Most corn-chandlers do not keep the heavier oats..... 182
horsemen do not comprehend the utility of the neck..... 389
masters only know their horses through the groom's report..... 222
people who buy and sell horses are cheats..... 357
well-bred horses have stubborn necks..... 390
Mother's milk, allowed to the young, best secures development..... 446
Motion and sensation of the hind limbs depend on the spinal cord 270
of the quarters aids the pedal circulation..... 114
Mounting a horse is a good test for its excellence..... 417
Mouths, large, small, and dejected.. 397
Movable and fixed ring..... 507
manger..... 191
Movement of the feet is regulated by the condition of the body..... 126
Mr. Lupton's recommendation of White's method of roughing.... 129
Mr. Percival rode an animal shod with tips on the London stones. 116
Mucous membrane, when inflamed, greatly weakens..... 465
Much would be gained if the reader only acknowledged the writer right in theory..... 463
is learned by watching the groom lead a horse out of the stable... 278
the same now as in the seventeenth century..... 449
Muscles exist in pairs..... 253
how these operate upon the eye... 33
the, of mastication force the venous blood to the heart..... 23
Musty hay..... 176
Mysterious conduct of grooms..... 335

N.

Nags are now more ridden by others than by their masters..... 334
Nails, reasons for driving into the toe 113
Natural process of drinking described..... 70
diagram, of..... 71
Nature does not obey the laws of the Jockey Club..... 146
has allowed vacant spaces to exist, so as to preserve the beauty of the head..... 27

Nature pauses after the first year ... 144
should decide the period of lactation ... 446
Nature's toil regulated by density of structure ... 151
Nearly every man will sell his unsound horse ... 269
Nearness to the heart does not explain want of sensation in the foreleg ... 243
Necessity for ascertaining the customer's desires ... 363
Neck, the, generally indicates the disposition ... 389
Neglected foot of the ass ... 102
Never buy a horse said to be equal to your weight ... 418
decide upon the first trial of a horse ... 373
enter the stable where horses are kicking ... 227
finger the horse you mean to purchase ... 372
leave the animal before the bleeding is finished ... 92
lose sight of the horse you contemplate buying ... 279
mount a strange nag in a crowded locality ... 272
purchase a horse without a veterinary examination of it ... 425
Newly, the, born foal ... 442
New shoe, the, has many recommendations ... 114
Nibbling the wood-work induced by enforced idleness ... 204
Nicking was a senseless barbarity ... 380
Night before the horse fair ... 359
clothing ... 499
the horse can see as well in, as the cat ... 32
watcher, a, enables the food to be better distributed ... 325
Nine o'clock duties ... 341
Nippers is a misnomer when applied to the front teeth of the stabled horse ... 167
only inspected to ascertain the age 137
No accident should teach a horse doors and pain are associated ... 308
instrument formed of steel or iron should be permitted in the stable 335
jockeyism can foretell the attack of kidney dropping ... 266
man can know all about the breeding of all animals ... 427
means can eradicate the evils of stables while pavement slopes ... 251
muscles present on the shin ... 410
one would purchase, did horse dealers speak the truth ... 360
No teeth no horse ... 133
unknown undividual can pick the dealer's stock ... 375
wild horses are known to be in existence ... 437
Northern extremity of the stables divided into three small rooms .. 317
Nose alone breathed through ... 69
Nostrils, the, indicate the dimensions of the lungs ... 399
Novel use made of the manger ... 210
Noxious atmosphere, a, compels the resort to stimulants ... 329

O.

Oatmeal, good, described ... 180
Oats are a most extravagant feed for horses ... 194
are often moistened to increase their bulk ... 185
best Scotch ... 180
English feed ... 185
English, from Canadian seed ... 180
Finland black ... 184
first class Swedes ... 181
hair calculus ... 183
Irish, bleached ... 184
kiln dried Danish ... 184
Konisberg ... 180
light and heavy ... 182
magnified English ... 183
magnified musty ... 189
new Irish feed ... 181
Petersburg ... 180
Scotch, second quality ... 184
should be always bought by weight ... 181
when musty are covered with fungi ... 189
Observe that both shoulders are of the same bulk ... 417
the eating capabilities of horses .. 354
Objections to drinks ... 73
Odd feet are evidences of former lameness ... 413
feet are not uncommon among horses ... 413
Ointment, blistering, is made with refuse flies ... 82
Old English shoe ... 96
hunter and young man's steed ... 464
One failing, the, of horse dealers ... 360
kind of jibber stops suddenly and backs ... 284
lateral incisor in both jaws declares a four-year old ... 151
prime foal in two years may be better than four bad every year 445

One-year old, a, worked as a matured animal..... 143
Open railings are becoming general. 307
railings should partly form the partitions to loose boxes..... 307
the stable doors during the night. 309
Order the groom to peep during the night at the horse which is too tired to eat..... 352
Original habitat of the equine race. 34
Ould, the, mare..... 447
Over-indulgence ruins the horse..... 454
Oxyen, different quantities of, inhaled by different horses..... 402

P.

Pace natural to blindness is induced by fixing the head with the bearing-rein..... 407
Pad grooms, their weight, their qualifications, and their duties.. 334
Pail, a clean one, should be kept in every stable..... 178
Pain consequent upon eating the stable diet..... 169
expressed by any peculiarity in progression..... 103
from strain on the ligaments occasions inveterate kicking..... 271
merely increases timidity..... 293
Panic acts on horses as on men..... 226
Paring the foot..... 102
Parts affected in "kidney dropping" 270
Passion an evil quality in a groom.. 500
Pastern bones repose upon the back tendons..... 43
play of, in thorough-breds, proof of elasticity in the entire body. 115
the, are regulated by the flexor tendons..... 411
the, should be judged by the swelling beneath the elbow..... 412
Patented food, only the groom's secret largely acted upon..... 166
Patent foods..... 196
safety-spring stirrup bar..... 510
trace shaft recommended in spinal disease..... 276
Pattern of grating to put over gutters..... 300
Patience is more than a virtue in a teacher..... 457
Pay a fair price for good a horse.... 375
Peculiar features of the fore limb... 409
Peep, a, into a dealer's yard..... 305
Peril of turning horses to graze without removing the halters..... 225
Perils attending fright in the stable.. 209
of modern coach-houses..... 323
Period of gestation in the mare..... 448
Permanent incisors come up in the same canals as the milk teeth occupied..... 159
molars are not perfected when cut 156
Perspiration implies cuticular activity..... 345
when excessive, greatly weakens the body..... 465
Perversity of the old agricultural mind..... 447
Petersburg oats..... 180
Physic and its administration..... 53
Pinning up subsequent to bleeding.. 92
Pitiable "vice" in horses..... 254
Place of birth, the, also regulates the kind of hoof..... 413
the, is cleared before the stable flooring is disturbed..... 249
two powerful men to prevent the jibber bolting..... 283
Plan of hot water service..... 322
Points, their importance and their development..... 379
made to screw on to shoe, a good substitute for roughing..... 129
of the blood haunches..... 419
Portrait of a one-year old..... 143
Position of the bones in the straight shoulder..... 405
of the foot casts the weight on different structures..... 253
Posterior limbs have no motion or sensation during a fit of kidney dropping..... 267
Precautions necessary after bleeding 93
necessary when bleeding the horse 90
Prejudices concerning blisters..... 80
Prejudice concerning the ears of a horse..... 282
declares in favor of a short neck.. 392
Preparation for scurfy skin..... 337
Prepared horse skin boot is the best application for cutting..... 123
Preparing the lying-in chamber..... 440
for the event..... 441
Present mode of shoeing is a failure. 104
Presents, occasional, to servants..... 493
Price, the, of most carriages..... 477
Pricking the foot when nailing..... 100
Pride, the, of the trade..... 360
Prime horses are often bought on speculation by dealers..... 376
Prisons should be built to resist the captives' utmost exertions..... 219
Probable result of a man enduring the horse's doom for one week.. 206
Profit and loss of a dealer's establishment..... 366
Proper mode of preparing stems for food..... 177

Proper treatment would be far the cheapest in the long run..... 222
Properties of the horn forming the wall of the hoof..... 98
Proposed stables are not to be measured by existing buildings. 297
Prolonged action is better than excessive labor..... 468
Protect the points of flexion before blistering..... 83
Proved, that the horse cannot be vicious..... 264
Provision against the ravenous feeding horse..... 312
Prudence is banished by joy when the horse is leaving the stables.. 237
Puller, a, is always a dangerous servant..... 398
Pumping action necessary for the circulation of the foot..... 246
Punish the smith who injures the hoof to fix on to it a small shoe. 131
Pupil of the horse's eye not circular 31
Purchases necessary when the horse is started..... 497
Pure breeds often have bulging, frontal sinuses..... 394
Purpose of the pastern joints..... 411

Q.

Qualifications of the author to descant on breeding..... 427
Quarrels are provoked by narrow doorways..... 236
between horse and driver generally end fatally..... 264
Quarters, hind, the seat of propulsion..... 45
Quarters of the hoof are left free by nailing the new shoe to the toe. 114
Quiet method of giving a drink..... 77
mode of giving a ball..... 67
Quietude and darkness do not dispose the horse to sleep..... 311

R.

Racers, when training, undergo excessive labor..... 466
generally are old before their stock becomes famous..... 431
inhale more air during rapid motion..... 403
Racing men and bumpkins, their conduct contrasted..... 144
Racing plates..... 115
are dangerous shoes during the struggle..... 472
Railroads not opposed to the breed of horses..... 18
Rats enter stables through ordinary gutters..... 300
Rat tails are said to denote good horses..... 387
Rayment's, (Mr. C.,) his oatmeal recommended..... 178
Rebound or spring of the racer improved by the present mode of shoeing..... 115
Recapitulation of certain points in the horse..... 416
Receiving the first lesson..... 458
Reflection needed to comprehend the requirements of the horse..... 200
Regular horse dealers avoid flats.... 363
Regulations to be observed at feeding time..... 191
Reins, the necessity of good leather for..... 517
for foals should be partly of India-rubber..... 459
Remedies for a scurfy skin..... 290
for clicking..... 126
for cutting..... 122
for wounds and abrasions..... 231
Repeated blows on one spot, evil of, when bleeding..... 91
Requisites for the groom's use..... 500
indications of a well-built carriage..... 485
Respect is felt toward a person who can state his wants to a dealer. 374
Rest depends upon digestion..... 311
generally good for pedal annoyances..... 126
is imperfect when taken standing. 260
Restless eye, a, denotes timidity..... 396
Restlessness induces the collar-rope to be bitten..... 215
Results of deranged digestion..... 196
Retention of the placenta..... 442
Rick of the back..... 264
disables a horse as a wheeler or to endure excessive strain..... 275
is severe in heavy horses..... 273
often leads to fracture of the spine 276
or chink of the back is common, but little understood..... 266
Ride, to, is not necessary in a good groom..... 333
Rider, the, and the head destroy the equality of weight on the limbs. 417
should understand the appearances of the healthy eye..... 290
swings on elastic life when seated on the back..... 41
Ridiculous to talk of a horse being "vicious"..... 263
Rising to the leap..... 461

Roach backs are common on the Essex marshes..... 384
generally spiteful 384
have been used as hunters..... 385
Rolling occasions the hind leg to get beyond the post of the stall..... 230
Roof consists of two parts..... 314
of the ambulatory, how supported and drained..... 302
the, described..... 314
Room for the night-watcher is supplied with comforts..... 325
Rooms at back divided from the stable by a stout wall..... 316
Roomy mares are a mistake..... 429
Roots are relished by horses..... 195
Roughing, as generally performed... 128
Rough-riding is practiced at three years of age..... 147
Rounded incisors would prevent the animal biting the grass..... 289
Roundness of the jaw's lower margin during colthood..... 142
Rowen hay..... 174
Rules for selecting a sire..... 438
Running away..... 294

S.

Sacrum, the, is one bone in the adult 38
Saddle-tree, a, with spring stirrup-bar attached..... 495
Saddlery and harness..... 494
Safety is sacrificed by the violent use of the bearing-rein..... 407
Sameness of diet deranges the digestion..... 195
of provender induces cutaneous irritability 286
proves vice to be induced by disease or by instinct..... 295
Sand in the eye, the horse protected against..... 35
Savage horse, how to render quiet... 60
Scene witnessed at Holloway 294
Science has demonstrated the mews is an unhealthy abode..... 328
and practice unite in estimation of the loins..... 383
Scotland, the ass does not breed in.. 49
Scratching the ear often fixes the hind pastern in the collar-rope. 224
Screw shoe, folly and inhumanity of. 118
Scroll-eyed hames..... 506
Seated shoe..... 117
Second crop of clover..... 175
Secretions, though hard, are governed by the inward soft organs 118
Section of a superficial gutter..... 299
of the proposed stables..... 324
See-sawing, or weaving, in horses... 205
Segundo bit, the..... 523
Senses, the special, assist one another..... 398
Serious accident to a cavalry officer. 272
Servants exaggerate the master's behavior..... 202
Seven o'clock duties..... 339
Seventh year, the, should witness the active service of the horse..... 462
Several diseases are almost peculiar to the rich..... 323
Severity endangers man's property in the horse 255
Sharp-pointed nail heads no effectual substitute for roughing.....129
Shedding of the temporary molars.. 156
Shelter and nurture are requisite for all young horses..... 429
Sheltered ground between the gig and coach houses..... 320
Ship biscuit proposed for horses' food..... 195
Shoe is displaced by growth of horn 106
is wide enough if it supports the wall..... 104
Shoeing..... 95
blamed for all the changes in the foot 101
Shoes act injuriously by confining the foot..... 472
the, should be observed at the time of purchase..... 424
Short-necked horses cannot rest the limbs when at grass..... 392
horses feed badly in the field 392
Sides of the ventilator can be opened or closed at pleasure..... 315
Sight should be obscured during the act of bleeding..... 91
Sights of London streets..... 199
Signs of old age in the horse 136
Situation of the cistern..... 313
Six o'clock duties..... 339
Size and requirements of stable doors..... 307
of less import than form of thorax. 403
Skeletons in museums are never correct..... 408
Skin and lungs sympathize with each other..... 344
Slanting floors pervert the intentions of bone and tendon..... 251
hoofs are very bad..... 414
pavement causes horses to stand across the stall..... 254
shoulder, the benefits of 408
Sliding mouth bit, the 524
Slight movements excite the attention of a stabled horse..... 203
Slipper shoe, first mention of..... 111

Sloping pavement, a, extends from the front of the ambulatory.... 319
Sloth not favorable to paternity..... 437
Slow consuming boiler employed to warm the stables..... 321
Small animals are preferred for their working capability..... 433
stables do not generally kill because they are draughty..... 81
Smallness of neck shows debility... 389
Snares which surround the groom... 330
So-called "incapacitating vices"..... 263
Society forces horse dealers to employ fiction..... 360
the, for preventing cruelty to animals..... 476
Soft palate, some of the uses of..... 28
Sole is removed by the shoeing smith and the veterinary surgeon..... 104
made to bear some pressure..... 104
Some English thorough-breds have Roman noses..... 394
substitute should be found for a stud groom..... 335
Southern end of the proposed stable. 319
Space, the, above the horses should be free to the roof..... 332
Spasmodic inhalation denotes defective respiration..... 399
Special senses, the, should be noted as testifying to the health of the body..... 398
Speedy cut often causes a fall..... 121
warrants instant rejection..... 423
Spinal cord, the, is injured when "kidney dropping" occurs..... 269
Spine, how the bones of are united.. 39
sinks and rises in the living horse 383
the, of a horse is delicately organized..... 265
the base of the skeleton..... 38
Spring bar and spring stirrup..... 510
Squatting on the haunches is an unnatural position in the horse.... 267
Stable implements are terrible weapons..... 318
pails are not suited to contain a horse's drink..... 314
the, cannot be well managed by one pair of hands..... 339
is relinquished to the servant..... 335
the only one known to the ass..... 48
new, will be thrice drained..... 301
Stables are inadequate prisons for horses..... 219
not proportioned to the horse's size..... 225
opposed to the habits and instincts of horses..... 247
the last considered when houses are planned..... 233
Stables as built—are they the best possible?..... 252
are paved with Dutch clinkers..... 249
as they should be..... 297
do not require a blaze of light.... 229
in many families, are regarded as lumber lofts..... 220
promote the decomposition of urine..... 249
should be as clean as dairies..... 316
Stablemen suffer most from present customs..... 226
Stagnant misery is personified in the horse..... 243
Stallions are generally too fat..... 431
Standing in the manger..... 208
while it sleeps..... 260
Starvation is injurious before exertion..... 471
Starved, horses are, when confined in small stables..... 81
Steeds are worn out serving more than one master..... 334
Steel inserted at the toe of the clip shoe..... 120
Stewart's stable economy..... 234
Stiff back reduces the horse's value. 278
Stick, blood, depicted..... 90
Stomach small and well situated..... 20
Stout horn is required in the hoof of a horse..... 415
Stranger, a, has entered the stable.. 204
Strange substances eaten in stables. 196
Straw figure should be placed on the colt's back..... 458
worthless as food..... 177
Striking a horse when passing through a door is dangerous.... 238
Strong feet are not necessarily liable to disease..... 414
Submissive, the, are the abused..... 234
Substance is absent in the present breed of horses..... 432
Substances which do not nourish are not food..... 193
Suburban grooms generally live in the house..... 328
Suburbs, the, are often disturbed by the thud of a trotted cart..... 274
Successful dealers are conceited..... 377
Sudden agony makes horses kick when mounted..... 271
Suffering experienced at three years 148
Sulphur on oats, to detect..... 185
Summered..... 474
Summer's coat, advent of, is delayed by clipping..... 344
Supposed places of the groom's residence during certain periods.... 329
Supply of water, how arranged..... 313
Swerving is a mild form of shying.. 292

T.

Tails as denoting breed 387
Tail, the, acts as the rudder of the body 380
Take everything coolly when in a dealer's yard 374
Tale, a, illustrative of patience 520
Tapidum lucidum, its uses in the horse's eye 32
Tares are good food 189
Tax, a, is demanded on all that enters or leaves the stable 330
Tearing the clothing 287
Teeth 133
at advanced periods 161, 162
at birth 139
cannot be positively interpreted after the fifth year 163
one fortnight old 140
three months old 140
Telescopic nature of the horse's eye. 33
Temporary loose box 356
molars, peculiarity in the shedding of the 156
Tempting position of the manger 210
Tendon cannot sustain pressure 254
Ten o'clock duties 341
Terrible consequences of thoughtlessness, or of parsimony 262
Terror is never removed till the horse's spirit is broken 240
is dangerous as the place of its exhibition is circumscribed 255
mistaken for "vice" 109
Test for "kidney dropping" 268
Thickness of neck not an objection .. 389
jaw caused by young teeth 142
Things needed to dress a sensitive horse 289
Thin heeled shoe pointed the toe upward, and did harm 120
neck accompanies emaciation 460
stomachs often taken from the bodies of old horses 178
walls, difficulty of nailing a shoe on 100
web to the seated shoe 117
ear denotes goodness of breed 395
Thinning the sole. 103
Thirst, a consequence of dry food ... 167
Thorough-bred quarters express determination 419
Three purgatives cannot promote strength 465
quarter shoe 116
Time should be allowed for nervousness to subside 240
the, occupied in foaling is short ... 439
Times when the horse feeds 197
Timidity flies from any danger 281
Tips afford all the protection the racer's foot requires 473
Toe is cut and burnt when the horse shoe has a clip 108
reasons for fixing nails into 113
Toes, the, in the forefeet point upward in the stable 243
the, depressed in the gutter cause a luxurious sense of ease 256
To fly from danger is an instinct in the horse 295
make gruel properly 178
Tool-house at the back of stables 318
Tools necessary for White's mode of roughing 130
the, employed for carriages 480
Too many classes swindle when horse dealing 269
Tooth, its component substances 157
Torture is a favorite mode of cure with grooms 287
Town grooms inhabit impure rooms over the stables 328
Trainer's, the, stables are foul 467
Training and running are bad preparations for paternity 429
folly of the present system 187
necessary for young horses from the country 366
spoils the tempers of many colts .. 470
stables do not develop the true disposition of a horse 434
Treading on an upright nail 101
Treatment for jibbing 283
for kidney dropping 268
for rick of the back 275
of the ass reprobated 47
of the blood stallion 431
of the heels when dirty 350
proper for the blood mare 435
Troughs are empty while the cistern contains some water 321
Tuition should be daily till the second year 459
Turkish slipper, likeness to 102
Tushes are affected by age 161
are uncertain teeth in the horse ... 150
Twitch, a, generally kept 74
Two chains and a collar-strap are employed on some horses 217
kinds of cutting 121
men meeting on a hill do not retain their relative positions 254

U.

Uncertain which shoe will prevent clicking or forging 125
Unclothing the beauty 376

Undulating pavement affords every kind of standing ground..... 299
Unfitness of horses for captivity... . 203
Uninitiated, the, greedy for bargains..... 277
Unnecessary, bleeding is..... 93
Upland hay..... 172
the only good hay..... 176
Upright pasterns denote hard work has strained the flexor muscles. 411
Urine, on exposure yields ammonia..... 249
stagnates in the gutters..... 249
Use of the mane and tail..... 380
Uses of the different components of the teeth..... 158
of the false nostril..... 25
of the harness-room..... 317
of the sheltered space..... 320
to which stable doors are subject..... 236
Usual applications, the, check the hoof's perspiratory functions... 353
explanation, accounting for the weakness of the fore limbs..... 416
length of horse cloths..... 350
method of cleansing the heels..... 346
Utter darkness excites timidity..... 226

V.

Valves aid the circulation when opposed to gravity..... 245
in the veins of the leg..... 244
of jugular veins only act when the head is depressed..... 22
Various people buy and sell horses. 357
substances are interposed between the ends of bone..... 42
Veins so arranged as to prevent congestion if feeding off the ground..... 21
Ventilation secured by having the doors in parts..... 308
Ventilator roofed with stout glass... 315
Vertebræ, the, are the base of the skeleton..... 380
Vetches, on which agricultural teams live, indicate no danger in beans 468
Veterinary examiners too often neglect the spine..... 277
profession composed of imperfectly educated men..... 73
Vicious horses are mostly weakly creatures..... 418
View extended by mounting on to the manger..... 210
Voice, the, is sufficient goad for a willing animal..... 460

W.

Walking a horse is more than simply moving..... 124
through the stables and physicking the stock..... 377
essential to the horse's foot..... 246
Wall of the hoof..... 98
the, is struck during darkness..... 258
Warranties are of no value..... 370
Waste of present feeding..... 193
Wasting the hay..... 212
Watch the action while the horse is being run along the ride..... 423
Water, its importance in the stable.. 486
should be freely employed..... 338
should only be applied to the heels after special permission..... 352
troughs described..... 313
Weakly or healthy foals now suck only the same time..... 446
Weakness is not the accompaniment of the racer's elastic pastern.... 411
Weariness cannot promote thrift..... 249
induces the horse to play with its needless corn..... 213
Weaving is an effort to promote the circulation of the foot..... 250
or see-sawing in horses..... 205
Web slants in the seated shoe..... 117
none to the slipper shoe..... 111
the, of the shoe serves to retain stones..... 103
Wedged-heeled shoe, danger of..... 119
Weeds of the blood stock..... 422
Weight should not be put on horses during training..... 468
the, of the head is not felt during health..... 388
Well-bred, the, and coarse-bred heads contrasted..... 393
Wetting the heels most injurious.... 346
What occasions horses to kick by night?..... 228
Wheels, how long these should last..... 488
how to use and understand..... 491
When a part of the frame moves, all parts are agitated..... 150
buying, procure a horse rather too strong than strong enough..... 374
gentlemen meddle, the dealer exults..... 372
the foal quits its dam, breaking should commence..... 458
Where the fore limb quits the trunk, muscle should abound..... 409
White horses are generally old..... 136
Why a carriage should be cleansed from mud..... 487
breeding does not pay..... 428

Widest, the, of modern stable doors are too narrow..... 238
Width of channel testifies to the breathing capability..... 399
Wild animals are not caged like the horse..... 202
horses nowhere exist..... 37
Wind sucking caused by stables..... 205
Windpipe capable of contraction..... 26
Winter's frost always takes horse proprietors by surprise..... 126
Winter shoes are best made in summer..... 126
Wintry perspirations, probable cause of 343
Wipe the oil off after blistering..... 83
Wired-in hoofs are bad..... 415
Wisp and brush are abused..... 342
Withhold all medicine from the breeding mare 443
Wolves' teeth are of no importance. 143
Work demands more support than grass affords..... 133
when not excessive, benefits health 435
Worked too early..... 19
Worst cheat, the, in horse flesh 357
Wound, precautions necessary after bleeding..... 93
Written warranties seldom required by the honest dealer..... 365
Wrongs inflicted on horses..... 199

Y.

Yew clippings poison horses..... 171
Young animals are purchased by the London dealers 366
horses are put in the chains as teamsters..... 265
horses should be from birth set apart for their future uses..... 438

THE END.

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